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ABSTRACT

The 2000 Tennessee School Systems Report Card data for 138 Tennessee public school systems were examined to identify variables that predict student performance in reading, language arts, mathematics, science, social studies, writing, high school competency examinations, attendance, and graduation. The dependent variable was school system grade point average (GPA), computed from grades assigned to each school system in each of the graded areas for students in grades K-5 and 7-12. Predictor variables were system per pupil expenditure, system size, percent local funding, percent low income students, percent ethnicity, and school system average teacher salary. A hierarchical regression analysis with school system GPA as the dependent variable results in an "R squared" of 0.62 and adjusted R squared of 0.60, $F(6,129)=34.909$, $p<0.001$ on step 1 of the analysis, with teacher salary having the most positive effect on student achievement and system size and percent of students on free and reduced price meal having the most significant negative effect. Teacher salary was then regressed on per pupil expenditure, system size, percent local funding, percent students on free and reduced price meal, and percent white student. The analysis yielded an R squared of 0.80 and an adjusted R squared of 0.79, $F(5,131)=104.005$, $p<0.001$. As expected, teacher salary was highly correlated with percent local funding, per pupil expenditure, and county per capita income. Larger school systems were slightly more likely to have higher teacher salaries, but not at a statistically significant level, and systems with larger percentages of students on free or reduced price meals were significantly more likely to have lower teacher salaries. Percent of white students in the system has a negative effect on teacher salary, but not at a significant level. Two appendixes contain a chart of the Tennessee county per capita income in 1996 and information about the Tennessee performance model. (Contains 11 tables, 9 figures, and 24 references.) (Author/SLD)

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Do Teacher Salaries Make a Difference?

Tennessee Teachers' Salaries and Student Achievement in the Year 2000

ED 449 206

Marie Miller-Whitehead

December 31, 2000

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Do Teacher Salaries Make a Difference?
Tennessee Teachers' Salaries and Student Achievement in the Year 2000

Marie Miller-Whitehead

Abstract:

The 2000 Tennessee School Systems Report Card data for 138 Tennessee public school systems were examined to identify variables that predict student performance in reading, language arts, math, science, social studies, writing, high school competency exams, attendance, and graduation. The dependent variable was school system GPA, computed from grades assigned to each school system on the state report card in each of the graded areas for students in grades K-5 and 7-12. Predictor variables were system per pupil expenditure, system size, percent local funding, percent low income students, percent ethnicity, and school system average teacher salary. A hierarchical regression analysis with school system GPA as the dependent variable resulted in an $\underline{R}^2$ of .62 and adjusted $\underline{R}^2$ of .60, $F(6,129) = 34.909$, $p < .001$ on step one of the analysis, with teacher salary having the most significant positive effect on student achievement and system size and percent free and reduced having the most significant negative effect. Teacher salary was then regressed on per pupil expenditure, system size, percent local funding, percent students on free and reduced meal, and percent of white students. The analysis yielded an $\underline{R}^2$ of .80 and an adjusted $\underline{R}^2$ of .79, $F(5, 131) = 104.005$, $p < .001$. As expected, teacher salary was highly correlated with percent local funding ($r = .83, < .01$), per pupil expenditure ($r = .76, < .01$), and county per capita income ($r = .67, < .01$).

A second model, a two stage least squares regression, conducted with teacher salary as the explanatory predictor and per pupil expenditure, percent white students, percent free and reduced meals, and percent local funding as instrumental predictor variables yielded a Multiple $\underline{R}$ of .432, an $\underline{R}^2$ of .186, with an adj $\underline{R}^2$ of .18, $F(1, 134) = 30.68$, $p < .001$.

Percent of students on free and reduced meal status and system size had a negative effect on school system GPA.. Although per pupil expenditure had a slight negative effect on school system GPA it had a positive direct effect on teacher salary. Teacher salary, percent local funding, and percent of white students in the system had a significant positive effect on school system GPA.

Larger school systems were slightly more likely to have higher teacher salaries, but not at a statistically significant level and systems with larger percentages of students on free and reduced meals were significantly more likely to have lower teacher salaries. Percent of white students in the system had a negative effect on teacher salary but not at a significant level.

As a followup an index of teacher salary/county per capita income was computed for each school system.

Acknowledgments

This report is one of a series of longitudinal studies of Tennessee educational accountability, student achievement, school systems, school system finance, and teacher data begun in 1992 and continued in 1994 when the author was a doctoral student. Several TEA, school system and Tennessee Department of Education administrators provided either encouragement, information, or other assistance. Among these were Robert Cullen, Jr., Donna Cotner, Ben Brown, Gerald Hausman, and Al Mance, who were particularly knowledgeable in the areas of statewide Tennessee teacher salary comparisons, state accountability indicators, value-added assessment, and/or student testing.

– Author

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Executive Summary

Economic and performance indicators are among the first areas to receive attention at the beginning of each new year and as January 1 of 2001 approaches this year is no different, particularly as it marks the beginning of a new millennium. A new President has entered the White House after an historic month-long recount of electoral votes, the closest race in over 100 years and also one that signaled a change from a Democratic to a Republican administration for the first time in eight years. A new Secretary of Education has already been appointed. In the past there have been marked differences between Republican and Democratic views on the role of public education and how it should be funded, particularly in the areas of school vouchers and privatization. The media is deluged with information about how corporate investors and private individuals should invest money to best advantage in the coming year, which stocks are "good investments" and which should be "dumped" by the savvy. So, with all these imminent changes and choices to make where do the wise need to look for future growth? In this day and age when rarely a week passes without a front page article about high stakes testing and its consequences for school systems, teachers, and students it might be appropriate to look at several areas of school system performance in the state of Tennessee and ask the question, "Does money spent on public education make a difference and do school systems with higher teachers' salaries also have higher student achievement?" The answers to these questions are particularly relevant in light of ongoing co[illegible]ases over various areas of school finance, including teacher salaries. Although they do strongly support equity in teacher salaries, teacher organizations historically have been almost unanimous in their opposition to pay-for-performance initiatives as the unintended negative consequences which they foresee may outweigh any benefits in improved student achievement. However, the results of this study demonstrated a significant positive correlation between teacher salary and student achievement for the year 2000 in Tennessee after controlling for student poverty, ethnicity, system size, percent local funding, and per pupil expenditure.

Introduction

Each year the state of Tennessee makes available an enormous amount of information about schools, school systems, teachers, and financial data related to school system accountability for Tennessee's 139 public school systems. These data are provided each November in a report titled *Summary of Tennessee's Public School Systems Report Cards*. While the format for the annual report has changed somewhat from year to year, with the 2000 report containing 109 categories as opposed to over 300 in 1995, much of the information is consistent enough to provide for analysis of trends and for other comparisons of interest. The 1999 State Report Card, for example, provided information on percent of schools in each system meeting state class size mandates which the year 2000 report card does not include, as well as separate disaggregated indicators for technology, special education, vocational education, the school lunch program, transportation, and the like.[1]

The state of Tennessee has mandated through legislation certain levels of performance for school attendance, promotion, class size, and dropouts as part of the EIA[2]. Revisions in the Tennessee state educational accountability legislation and a movement from regulatory to performance monitoring standards account for many of the changes in reported indicators (Appendix A). In accordance with this legislation, schools shall have a high school dropout rate of 10% or less, K-6 attendance rate of 95% or better, 7-12 attendance of 93% or above, and K-8 promotion of at least 97%. Class size for K-3 should be an average of 20 with no class over 25, for grades 4-6 an average of 25 with no class over 30, and for grades 7-12 an average of 30 students per class with no class over 35. Vocational class sizes are the same as K-3 (average of 20, no class over 25). These mandated improvements are costly, but have resulted in increased achievement for Tennessee's students based on national and regional comparisons of NAEP data (Grissmer, Flanagan, Kawata, & Williamson, 2000). Tennessee leads the contiguous states in improvement in percent of students completing high school (87%), percent of fourth grade students writing at or above proficiency level (24%) and in percent of students with use of computers for eighth grade math (54%) (National Assessment of Educational Progress, 1999).

Tennessee's students are measured in grades three through eight each year with norm-referenced and criterion-referenced multiple choice tests and in grades four, seven, and eleven with performance writing assessments. For the year 2000 the Tennessee state report for school system accountability included assigned grades of A, B, C, D, or F for the following areas of school accountability: Tennessee students in grades three through eight have been tested annually since 1998 in reading, language arts, math, science, and social studies with the CTB Terra Nova and in previous years with the CTBS/4. The Educational Accountability Division computes for

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[1]All schools must meet state class size guidelines so this area is no longer reported.

[2]Educational Improvement Act, Chapter No. 535, Tennessee Code Annotated, §§ 49-1-601-606.

each school system composite K-5 and 6-8 "achievement grades" based on percent of each system's K-5 and 6-8 students proficient in reading, language arts, math, science, social studies. In addition, a grade is assigned for percent of grade four and grade seven students proficient in writing and for percent attendance and promotion. Because the state of Tennessee uses not only percent of students at mastery or proficiency level on the tested criterion, each system also has a "value-added" or "gain" score grade to reflect composite student improvement in each of the above areas for students across grades K-5 and across grades 6-8. Thus, each school system earns two grades for each area in grades K-8: one for percent of students meeting criterion proficiency and another for "improvement" or value-added. For high school, grades are assigned for achievement in grade 11 writing, for ACT and SAT achievement, for percent attendance and dropouts, and for percent passing the Competency Test in both language arts and math. Thus, although there are 109 reported areas on the year 2000 Tennessee State Report Card including the financial data, a K-12 school system would have a report card with 34 "grades" assigned for student achievement in the tested subject areas and for attendance and promotion. A K-6 or K-8 school system would receive 27 "grades" for student performance in addition to other system indicators included on the state report card.

Student demographic areas on the report card include both number and percent of students by ethnicity and by classification as ELL or "English Language Learner," student discipline information disaggregated by ethnicity and socioeconomic or meal status, and number and percent of students participating in Title 1 programs. Number of students in each system, number of schools, number of teachers and administrators, number of waivers (including class size), grade configuration of the system, and number of SACS accredited schools provide additional information.

Financial data includes state and national comparisons for per pupil expenditure and average teacher salary as well as percent of funding from local, state, and federal sources. The 1999 report included data on the school lunch program, transportation, special education, vocational, and technical funding, funding for administrative, instructional, and non-instructional classroom, and the like. The most recent report has been simplified in accordance with State Board of Education guidelines for improving student performance under provisions of Ed-Flex.[3] The revised standards include actual student performance to the criteria as well as student gain in achievement over time. Table 1 provides a description of areas on the 2000 Tennessee State Report Card and Table 2 provides selected data.

Insert Table 1 about here

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[3]Education Flexibility Partnership Act of 1999. PL 106-25.

Recent Literature

Almost all states have developed accountability systems which report data on school systems and student achievement in a consistent way so that educators, decision-makers, and the public can make meaningful comparisons between school systems that serve disparate populations. Some of these accountability models, including Tennessee's, include criteria that compare school system data with state, regional, and national data on the same measurement scale.

The majority of states currently have in place statewide accountability legislation. According to a 1997 report by the Council of Chief State School Officers forty-six states require that students take at least one statewide achievement test and fifty-two state education agencies have mandated at least one accountability area for each of their school systems. Recent articles have examined statewide accountability indicators as comprehensive measures of teaching and learning in the schools ("State competency...", 1992). Most are in agreement that the broad areas included in most statewide accountability indices cannot provide sufficient information to fully assess the quality of teaching and the total educational experience that takes place in schools (Scheurich, Skrla, & Johnson, 2000; McLean, Snyder & Lawrence, 1998; Mathews & Hackett, 1997; Dorn, Bobbett, French, & Achilles, 1993; Bobbett, French, & Achilles, 1992).

There are many strong and valid arguments against using test score data as a primary outcome measurement, particularly where a concern is that students will attend school on a regular basis, learn social skills, develop inquiring minds, explore the arts, learn to love learning for its own sake, and graduate from high school without having acquired HIV or been killed by a classmate. Researchers and policy analysts have debated the use and abuse of high stakes testing and the civil-rights related issue of adverse impact for several decades with mixed results. Standardized tests are relatively inexpensive in terms of time to administer and score compared to other forms of assessment and this has contributed to their popularity; the long history of their use for grade level promotion, for high school exit exams, for college entrance exams, and for professional certification has endowed them with a certain authority (Natriello & Pallas, 1999; Dorn, 1998; Linn, 1994; Heubert & Hauser (Eds.), 1999; Millman (Ed.), 1997; Madaus, 1993). Thus, standardized tests have become, in a sense, one of the "sacred cows" of education (Shepard, 1990). Longitudinal analyses of student achievement on the Tennessee science subtest had indicated that both class size and school funding had a positive effect on student achievement by grade level (Miller-Whitehead, 1999; Miller-Whitehead, 2000). Proponents are certain that they provide students, teachers, and school systems with concrete and achievable incentives, goals, and objectives and that the challenge of doing well is a motivating factor. Opponents are equally certain that students and teachers are "turned off" by the pressure to do well and that these tests have a negative effect on student and teacher motivation (Neill, 1998). That said, schools are still places of learning and tests are a standardized method of measuring student learning. Most parents want to know that their children are receiving an appropriate education to prepare them for college or the workplace. They want teachers to serve as more than babysitters and schools to be more than day care centers.

Generally speaking, the consequences of high stakes testing refer more to the stakes for students than for teachers, although many school systems and some states have adopted teacher evaluation models that include teacher accountability for student academic achievement (McLean & Sanders, 1983; Sanders & Horn, 1994; Grier, 1983; Millman). The Tennessee value-added model of computing student improvement (also known as TVAAS) was developed and piloted in the early 1980's by William Sanders, formerly of the University of Tennessee at Knoxville, and has been the subject of a great deal of attention and substantial research and commentary not only in the academic community but also in the popular press. Although the language of the legislation has undergone some modifications since its passage, the Educational Improvement Act of 1992 (EIA) formally mandated the use of the "Sanders model" to compute value-added or gain in student achievement over time.[4]

Research Questions

Based on data from the 2000 Tennessee's School Systems Report Card as well as from other available sources, the present study sought to answer the following research questions:

1. Is there a relationship between student achievement and teacher salary?
2. Is there a relationship between school system size and student achievement?
3. Is there a relationship between student demographics and student achievement?
4. Is there a relationship between per pupil expenditure and student achievement?
5. Is there a relationship between percent of local funding and student achievement?
6. Is there a relationship between school system size and teacher salary?
7. Is there a relationship between student demographics and teacher salary?
8. Is there a relationship between per pupil expenditure and teacher salary?
9. Is there a relationship between local funding and teacher salary?

Each of the main research questions encompassed several subsets of inquiry related to the examination of the frequencies and descriptives of the variables to determine most appropriate

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[4]TCA § 49-1-606 of the Educational Improvement Act of 1992

method of analysis based on results of test of assumptions of normality and homogeneity of variance.

Data and Method

This study is essentially descriptive rather than inferential as the population included all Tennessee school systems for which data were available and thus the concept of randomization would hold true only for generalizations to similar school systems and populations, or for years not included in the present study. Data were used from the 1996, 1997, 1998, 1999, and 2000 Tennessee State Report Card although all student and system performance and achievement data used to compute system GPA were from the 2000 Report Card. Table 2 shows variables for the 138 Tennessee public school systems that were included in the analysis. Attendance has been shown to be a significant predictor for student academic achievement and generally better attendance translates into better student test scores. However, the grades assigned for attendance and dropout percentages were included in computations for the system GPA and thus were not used as independent variables in the analysis. Weights for each of the graded areas are provided in the Tennessee Performance Model summary information in Appendix B. While county per capita income for a three year period was included on the State Report Card in previous years, it was not for the 2000 Report Card. Thus, county personal per capita income data were used from the 1997 report card information. For comparison purposes, county per capita personal income for the year 1996 is also provided from an independent source, the Tennessee Department of Labor and Workforce Development, in Appendix A. The county personal per capita income information was drawn from several sources and thus the figures may vary somewhat depending upon source (Appendix A and Table 2). When available, financial data from the Tennessee State Report Card was used as the primary source of data for the city and county school systems and provided the most conservative figures.

Insert Table 2 about here

Table 3 provides descriptives for the variables in the analysis, with means, minimum, maximum and standard deviations for the 138 school systems. Franklin County (Gibson) and Carroll County Tennessee are served mainly by Special School Districts; 64 Tennessee counties are served only by a county system with the remaining counties having both a county school system and one or more city or special school districts. The city systems are for the most part K-5 or K-8 systems whose students feed into the county schools at grades 6 or 9.

Insert Table 3 about here

Table 4 is a correlation table for variables used in the analysis. Pearson's product moment correlations with significance levels are provided for GPA, teacher salary, percent local funding, system size (number of students), per pupil expenditure, SES (defined as percent of students qualified for free and reduced price meals), percent of white students in the system, and county per capita income.

Only 13 Tennessee systems have two or more percent of student population classified as ELL. Although not part of the main analysis Table 5 correlations are provided separately for the student demographics: percent of ELL, percent Hispanic, percent free and reduced meal, percent Black, percent Asian, and percent Special Education. These correlations were of interest to determine if there were significant relationships between students classified as Limited English Proficient and students classified as Special Education as well as relationships between ethnicity, SES, and classification as LEP or ELL.

The proposed path model was designed using AMOS software (Figure 1) and provides a simplified graphical presentation of the proposed regression model for the analysis, with the observed variables and covariance labeled with direction of predicted effect and the unobserved or latent variance indicated as "Other."

Insert Figure 1 about here

Table 6 provides the results of the analysis of variance for step 1 and step 2 of the hierarchical regression analysis, and Table 7 gives the unstandardized and standardized coefficients, standard errors for the β, and tests of significance.

Figures 2 - 9 show correlations between some of the variables of interest. However, because several of the variables were closely related these figures do not provide information about the unique contribution that each makes to the total explained variability of student GPA after controlling for the effect of the other variables and should be interpreted with caution, taking into consideration the results of the regression analysis from Table 7. They are, however, of interest if one considers that the R^2 may represent the pooled contributions of several variables. For example, ethnicity, county per capita income, and percent of students on free and reduced lunch are not independent of one another and a figure that indicates the relationship between school system GPA and percent of students on free and reduced lunch does not control for other contributing variables.

A second and alternative procedure was conducted using a two-stage least squares regression model in SPSS for school system GPA as predicted by teacher salary (explanatory

variable), with instrumental variables as per pupil expenditure, percent local funding, percent students on free and reduced meal, and percent white students (Table 8).

A school system salary to per capita income index was computed for each system in addition to GPA ; systems were then rank ordered by GPA (Table 9), teacher salary (Table 10), and salary to per capita income index rank (Table 11).

Results

Preliminary examination of the correlation of the variables in Table 4 showed that percent local funding ($r = .50$, $p < .01$) and teacher salary ($r = .44$ $p < .01$) were most highly correlated to school system GPA, with low SES ($r = -.65$ $p < .05$) having the greatest negative effect on school system GPA.. Percent local funding ($r = .83$ $p < .01$, per pupil expenditure, ($r = .76$, $p < .01$), and county per capita income ($r = .67$, $p < .01$) were most highly correlated to teachers' salaries, followed by system size ($r = .41$, $p < .01$). Percent of white students ($r = -.27$, $p < .01$) and percent of students qualified for free and reduced meals ($r = -.36$, $p < .01$) were negatively correlated to teachers' salaries.

Insert Table 4 about here

For student demographics, percent Hispanic was most highly correlated to ELL ($r = .89$, $p < 89$), followed by percent Asian ($r = .28$, $p < .01$) and percent Black ($r = .17$, $p < .05$). There was a nonsignificant negative correlation between percent ELL and percent free and reduced meal and percent Special education. Systems with more Hispanic students were also more likely to have higher percentages of Asian students, although less than 15 Tennessee systems had 2% or more of their students classified as ELL in 1999-2000. Asian students were less likely to be qualified for free or reduced meal status than were Hispanic students and Hispanic students were less likely to be qualified for meal status than were Black students. One Tennessee system had more than 11% of students classified as ELL in 2000. However, as these figures represent system aggregates it is likely that many individual schools exceed these percentages for students whose native language is other than English. There was a small correlation between percent of students on free and reduced meal and percent of Special Ed students ($r = .07$) but not statistically significant.

Insert Table 5 about here

SPSS regression module was used to produce the model found in Table 6, 7. The results of step 1 of the hierarchical regression analysis resulted in an R of .79, an R^2 of .62, and an adj. R^2 of .60, $F(6, 129) = 34.909$, $p < .001$. On step 2, the variables yielded an R

of .89, an $\underline{R}^2$ of .80, and an adj $\underline{R}^2$ of .79, F (5, 131) = 104.005, $p < .001$. While not perfect, the variables in the analysis were able to account for the majority of variability in school system GPA, over 60%. In step 2, the variables in the analysis were able to predict over 80% of the explained variability in teachers' salary.

Insert Table 6 about here

Table 7 shows zero order βs for the variables in the hierarchical regression, with system size and percent of students on free and reduced meal status having the most significant negative relation to school system GPA, and teacher salary having the most significant positive effect on school system GPA at step 1. Thus, before controlling for indirect effects, teacher's salary had a positive effect on school system performance, accounting for approximately 34% of explained variability in student achievement on test scores, attendance, and remaining in school. In the step 2 analysis, percent local funding and per pupil expenditure had the most significant positive effects on teacher salary, accounting for 40% and 45% of explained variability in teacher salary, respectively. The variables on step 1 and step 2 of the analysis had both a direct and an indirect effect on school system GPA.

Insert Table 7 about here

The variables in the second model, a secondary two stage least squares regression, did not account for as much variability as that provided in the model shown in Figure 1. The second model yielded a Multiple $\underline{R}$ = .432, an $\underline{R}^2$ of .186, and an adj $\underline{R}^2$ of .18, F = 30.68 (1, 134) $p <$ .001 with teacher salary as the explanatory factor in school system GPA and per pupil expenditure, local funding, percent free and reduced lunch, and percent white students as instrumental predictors. In this model, teacher salary had a direct positive effect on school system performance and accounted for approximately 19% of explained variability in a school system's achievement as measured by an overall GPA of student test scores, attendance, and remaining in school.

Insert Table 8 about here

Discussion

The purpose of the present study was to examine variables on the Tennessee School Systems Report Card that affect student achievement. Once again, percent of students on free and reduced meal status had a significant negative effect on student achievement, accounting for much of the explained variability in overall school system performance. It is also a variable that is not within the control of the school system to change without rezoning schools and school

districts. However, there were other factors that the school and community was able to control or influence, particularly funding for education. The highest school system GPA was 3.82 (very nearly straight A's, in student terms), the mean was 2.68, and the minimum was 1.35. Per pupil expenditures ranged from a low of $4,281 to a high of $7,872 and a mean provided on the state report of $5,794. Average teacher salaries ranged from a low of $29,774 to a high of $44,318 and a mean from the state report of $36,328. County per capita income figures can be misleading due to disparities from census sector to census sector within counties (what some have referred to as the "zip code effect") but figures from the Department of Labor and Workforce Development showed that in 1996, county per capita incomes ranged from a low of $11,800 to a high of nearly $33,000 with an average for Tennessee of a little over $22,000. There are teachers in Tennessee who cannot afford to live in the counties in which they work. Percent of students qualified for free and reduced meals ranged from a school system minimum of 5.7% to a school system maximum of 97%, with a state average of 43.5%. Nearly half of Tennessee's students live in poverty. Figures 2 through 9 provide a graphical representation of relationships between variables in the analysis.

After controlling for other variables, teacher salary was shown to have a statistically significant effect on overall school system performance, accounting for nearly 19 percent of school system performance as measured by overall GPA. Once again, there are myriad other outcomes for students that cannot and should not be measured by test scores but it appears that, on the average, higher teacher pay translates into improved student performance, all other things being equal (Table 2, 9).

On the average, students in the largest school systems did not achieve as well as those in smaller systems but it is well to keep in mind that the largest school system in Tennessee has 165 schools and of these several may be among the highest performing in the state (Table 2, 9).

Student demographics do affect student achievement and poverty is almost always, in general, the most significant predictor of student achievement. Students who live in poverty have many challenges to overcome and often doing well in school is the least of their concerns. School systems with more students qualified for free and reduced meals did not perform as well on student achievement as did those with fewer students who were entitled to free and reduced price meals (Table 2). Table 9, however, shows that 22 of the top-performing school systems had a third or more of their students qualified for free and reduced meals.

While per pupil expenditure did not have a significant or positive direct effect on student achievement, it did have a very significant indirect positive effect on student achievement through teacher salary, as a large portion of per pupil expenditure goes into the instructional budget (i.e., teacher salaries). Thus, while per pupil expenditure is not a particularly strong predictor of student achievement, if the funds provide higher pay for teachers it has a positive indirect effect on school system performance (Table 2, 10).

Percent of local funding had both a direct and indirect significantly positive effect on school system performance and student achievement, indirectly through its positive effect on higher teacher salaries. Thus, school systems that received more community support and were more autonomous had higher student achievement than those that did not have higher percentages of local funding (Table 2).

On the average, teacher pay was higher in larger school systems, perhaps because of the leverage that comes from being a member of a larger group that speaks with a collective voice on issues that effect student achievement. However, it might also be noted that the highest teacher pay was in some of the smaller Tennessee school systems, generally those associated with the high tech industry (Table 10).

On the average, teacher pay was lower in school systems with higher percentages of white students than in those with higher percentages of minority students. This may have been a factor of higher teacher pay in the city systems that served large percentages of minorities (Table 2, 10).

A related issue involved teacher salary as indexed to county per capita income. While not exactly the same as the computation for cost-of-living, this index (Table 11) yielded interesting information. In some counties, teacher salary was as much as three times greater than the county per capita personal income. In these counties teaching was among the highest paying jobs available. Appendix A provides additional information about county and area personal capita income and can be used for comparison purposes in conjunction with Table 11.

The results of this study indicated that improving school system performance and student achievement is not a "pie in the sky" dream, but is attainable if the community provides support. Unfortunately, the means to do this may not be available in communities in poor or rural areas of Tennessee without outside assistance. Resources are more readily available in urban areas, even though oft times the populations served are also among the more difficult to reach academically. Thus, there is an apparent dichotomy, with suburban communities having an advantage over both urban and poorer rural communities in providing not just adequate but more than adequate resources for their school systems.

Not directly addressed in this study are questions concerning teacher evaluation and pay-for-performance that arise as the result of evidence that teacher pay has a positive effect on student achievement: if teacher pay is increased without an accompanying improvement in student achievement, what are the possible consequences for school administrators and teachers? The present study cannot address this question, however, as student academic achievement is only one of the outcomes the public expects from its schools and teachers, and sometimes not the most important consideration for a community. However, the results of this study do support the position that funding for education has a positive effect on student academic achievement.

##

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Table 1
2000 Report Card Variables Reported

Description	Groups
System Number	
System Name	
Superintendent Name	
Schools	
Grades Served	
Schools SACS Accredited	
Students	
Teachers	
Teacher Waivers	
Teacher Permits	
Administrators	
Students - Number of	White
	Black
	Hispanic
	Asian
	Native American
	English Language Learner Special Education
	Free/Reduced Price Meals Title I
Students - Percent of	White
	Black
	Hispanic
	Asian
	Native American
	English Language Learner Special Education
	Free/Reduced Price Meals Title I
Suspensions - Number of	Total
	White
	Black
	Hispanic
	Asian
	Native American
	Male
	Female
Suspensions - Percent of	Total
	White
	Black

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Description	Groups
	Hispanic
	Asian
	Native American
	Male
	Female
Expulsions - Number of	Total
	White
	Black
	Hispanic
	Asian
	Native American
	Male
	Female
Expulsions - Percent of	Total
	White
	Black
	Hispanic
	Asian
	Native American
	Male
	Female
System	Per Pupil Expenditures
	Average Teacher Salary
State	Per Pupil Expenditures
	Average Teacher Salary
National	Per Pupil Expenditures
	Average Teacher Salary
State Grade	Per Pupil Expenditures
	Average Teacher Salary
System	Local %
	State %
	Federal %
State	Local %
	State %
	Federal %
Grades K-5, Achievement Grades	Reading
	Language Arts
	Math
	Science
	Social Studies
	4th Grade Writing

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Description	Groups
	Attendance
	Promotion
Grades K-5, Value Added/Gain Grades	Reading
	Language Arts
	Math
	Science
	Social Studies
Grades 6-8, Achievement Grades	Reading
	Language Arts
	Math
	Science
	Social Studies
	7th Grade Writing
	Attendance
	Promotion
Grades 6-8, Value Added/Gain Grades	Reading
	Language Arts
	Math
	Science
	Social Studies
Grades 9-12, Achievement Grades	11th Grade Writing
	ACT
	SAT
Competency Test Grades	Math
	Language Arts
	Both
Attendance Grade	
Dropout Cohort Grade	

Source: Department of Educational Accountability, Tennessee Department of Education

Table 2

Tennessee School System 2000 Report Card Data

nschool	config	nstudnt	pctW	pctELL	pctSED	pctFR	perpup	Tsal	GPA	Salrank	Nrank	percap967	index	indrank
6	K-12	4,184	94.0%	1.0%	16.5%	21.1%	$6,428	$42,667	3.824	3	52	$16,426	2.60	26
8	K-12	4,559	82.4%	1.1%	22.0%	23.3%	$7,872	$44,280	3.706	2	49	$18,199	2.43	44
29	K-12	19,056	92.4%	0.7%	14.8%	5.7%	$5,688	$36,512	3.529	25	9	$26,458	1.38	138
7	K-12	2,591	90.1%	0.8%	21.3%	27.2%	$6,964	$38,653	3.471	17	82	$13,893	2.78	7
2	K-9	1,087	70.5%	0.0%	13.2%	36.5%	$4,937	$32,881	3.467	57	120	$14,633	2.25	78
7	K-12	3,508	88.6%	0.3%	19.9%	29.6%	$5,794	$37,023	3.382	23	65	$17,263	2.14	105
10	K-12	6,672	86.8%	0.9%	15.9%	35.3%	$6,276	$37,900	3.353	18	29	$16,995	2.23	81
38	K-12	22,277	89.9%	1.3%	20.0%	19.9%	$5,252	$34,603	3.324	42	8	$17,574	1.97	129
3	K-6	978	94.7%	0.0%	20.7%	38.8%	$6,553	$40,065	3.280	9	121	$18,199	2.20	88
1	K-8	627	93.0%	0.3%	13.6%	28.5%	$5,131	$32,727	3.269	62	131	$14,369	2.28	66
5	K-12	2,148	95.1%	0.0%	17.2%	35.5%	$6,085	$36,465	3.212	26	90	$12,633	2.89	4
11	K-12	6,303	90.7%	0.5%	18.7%	39.4%	$6,919	$42,428	3.206	4	32	$17,634	2.41	49
43	K-12	44,189	76.3%	0.5%	20.4%	12.0%	$5,438	$40,620	3.206	7	4	$20,372	1.99	126
10	K-8	5,644	71.0%	3.0%	14.3%	27.5%	$5,767	$37,352	3.192	21	39	$17,637	2.12	108
4	K-12	3,276	76.1%	0.2%	15.9%	39.2%	$5,851	$40,023	3.152	10	70	$16,221	2.47	40
6	K-12	2,469	96.5%	0.8%	23.5%	45.4%	$5,557	$31,667	3.152	97	84	$14,665	2.16	101
3	K-12	2,025	75.4%	0.6%	17.3%	35.2%	$5,202	$32,137	3.133	77	93	$15,474	2.08	110
8	K-12	3,615	94.9%	0.7%	14.6%	40.0%	$6,968	$40,491	3.118	8	64	$17,634	2.30	61
86	K-12	51,708	83.8%	1.3%	14.1%	27.4%	$5,975	$36,715	3.088	24	3	$19,551	1.88	134
9	K-12	3,488	88.3%	0.1%	19.6%	42.3%	$5,859	$35,657	3.061	34	67	$16,221	2.20	91
17	K-12	10,627	97.3%	0.2%	16.3%	32.2%	$5,348	$38,740	3.059	16	15	$16,426	2.36	56
30	K-12	23,449	67.6%	0.7%	13.4%	30.6%	$5,310	$33,196	3.059	52	7	$14,528	2.28	63
9	K-12	4,375	81.3%	2.5%	18.4%	39.6%	$6,149	$37,686	3.029	19	50	$16,655	2.26	75
16	K-12	9,401	95.0%	2.3%	17.3%	34.6%	$5,109	$32,850	3.029	58	18	$16,058	2.05	118
1	K-8	709	91.8%	0.0%	13.8%	35.3%	$5,781	$37,339	3.000	22	130	$13,054	2.86	5
14	K-12	5,885	96.7%	0.1%	17.7%	38.1%	$5,758	$35,366	3.000	37	36	$15,860	2.23	82

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nschool	config	nstudnt	pctW	pctELL	pctSED	pctFR	perpup	Tsal	GPA	Salrank	Nrank	percap967	index	indrank
6	K-12	3,281	90.7%	1.1%	16.0%	48.1%	$5,449	$34,259	3.000	44	69	$15,042	2.28	67
12	K-12	5,841	91.7%	0.3%	21.2%	38.7%	$5,227	$32,108	3.000	80	37	$14,313	2.24	79
17	K-12	11,412	92.6%	0.5%	11.9%	12.2%	$5,451	$32,326	2.971	71	14	$17,667	1.83	136
6	K-12	3,007	95.5%	0.1%	13.6%	42.3%	$5,094	$32,562	2.970	66	75	$13,936	2.34	57
6	K-8	3,807	76.5%	3.5%	16.5%	18.2%	$7,215	$39,837	2.962	11	60	$26,458	1.51	137
1	K-8	916	78.8%	0.0%	17.4%	32.4%	$5,391	$36,047	2.962	30	124	$13,640	2.64	18
1	K-8	715	86.3%	1.3%	12.5%	47.4%	$4,500	$31,722	2.962	91	129	$12,824	2.47	39
1	K-12	296	96.7%	1.0%	17.1%	11.1%	$4,699	$31,373	2.939	105	137	$13,721	2.29	62
3	K-12	1,890	97.1%	0.0%	15.5%	42.3%	$4,797	$31,084	2.939	113	95	$12,344	2.52	33
30	K-12	24,991	85.9%	1.3%	15.0%	22.7%	$5,426	$36,248	2.912	28	6	$17,637	2.06	116
3	K-12	1,332	71.7%	0.5%	12.5%	39.7%	$7,376	$44,318	2.909	1	112	$16,426	2.70	14
4	K-12	1,375	56.3%	1.7%	10.7%	42.1%	$6,596	$39,045	2.909	13	109	$16,493	2.37	54
8	K-12	2,595	96.2%	0.0%	17.0%	51.7%	$5,553	$31,966	2.909	85	81	$14,184	2.25	77
3	K-9	1,147	91.7%	2.0%	21.3%	41.5%	$6,343	$37,578	2.900	20	117	$17,263	2.18	95
3	K-8	1,503	75.4%	0.0%	10.9%	49.1%	$5,071	$33,008	2.885	55	104	$15,042	2.19	92
10	K-12	6,677	98.6%	0.2%	14.0%	50.1%	$5,017	$32,461	2.879	68	28	$12,994	2.50	36
8	K-12	3,813	97.0%	0.2%	15.5%	44.1%	$4,472	$31,370	2.879	106	59	$13,042	2.41	50
6	K-12	2,522	89.5%	0.0%	13.6%	28.9%	$4,464	$31,081	2.879	114	83	$15,474	2.01	124
5	K-9	1,772	80.6%	1.1%	18.6%	43.6%	$5,970	$38,843	2.867	15	100	$14,351	2.71	13
11	K-12	9,739	79.0%	0.0%	20.9%	36.6%	$4,881	$33,531	2.853	48	17	$14,743	2.27	71
5	K-12	1,812	93.6%	0.2%	21.9%	45.0%	$5,575	$32,065	2.848	81	97	$12,581	2.55	30
12	K-12	4,985	90.3%	0.1%	13.6%	35.0%	$4,941	$31,424	2.848	103	40	$14,148	2.22	85
7	K-12	2,340	99.9%	0.0%	15.3%	68.1%	$5,231	$30,815	2.848	121	86	$12,221	2.52	32
3	K-12	1,800	99.6%	0.3%	19.7%	49.4%	$4,638	$29,774	2.848		98	$13,035	2.28	64
3	K-12	1,913	94.3%	4.4%	11.8%	39.5%	$5,730	$36,140	2.824	29	94	$15,931	2.27	73
24	K-12	12,132	98.3%	0.4%	17.9%	38.7%	$5,705	$35,795	2.824	32	12	$15,727	2.28	68
13	K-12	8,570	98.0%	0.2%	14.4%	34.0%	$5,159	$35,117	2.824	38	21	$16,995	2.07	113
4	K-12	1,784	98.4%	0.0%	20.2%	54.4%	$4,906	$33,057	2.818	54	99	$12,312	2.69	15
3	K-12	1,192	99.7%	0.2%	12.5%	58.1%	$6,347	$32,126	2.818	78	115	$11,714	2.74	12
3	K-12	2,049	98.4%	0.2%	17.1%	40.5%	$5,277	$31,439	2.818	102	92	$12,683	2.48	38
31	K-12	13,175	99.0%	0.0%	21.3%	34.3%	$6,788	$36,356	2.794	27	11	$17,634	2.06	115

nschool	config	nstudnt	pctW	pctELL	pctSED	pctFR	perpup	Tsal	GPA	Salrank	Nrank	percap967	index	indrank
8	K-12	4,750	89.4%	1.9%	17.3%	29.0%	$5,604	$34,224	2.794	45	42	$17,104	2.00	125
11	K-12	6,553	96.3%	1.0%	16.9%	40.2%	$4,986	$32,314	2.794	72	30	$13,865	2.33	58
3	K-12	1,350	79.7%	0.4%	14.7%	38.6%	$4,895	$32,670	2.788	63	111	$14,361	2.27	69
11	K-12	4,948	96.2%	1.2%	12.1%	46.9%	$4,998	$30,247	2.788	135	41	$12,429	2.43	43
1	K-8	386	95.6%	0.0%	19.0%	55.9%	$5,180	$32,645	2.769	64	135	$14,351	2.27	70
3	K-12	1,370	86.3%	0.5%	14.2%	49.1%	$4,425	$32,406	2.758	70	110	$14,361	2.26	76
5	K-8	2,814	77.8%	1.9%	15.9%	40.9%	$5,332	$34,481	2.731	43	77	$17,667	1.95	131
13	K-12	6,886	96.9%	0.1%	16.8%	41.3%	$5,109	$32,282	2.727	74	27	$14,919	2.16	97
3	K-12	1,137	87.2%	0.4%	14.1%	46.1%	$4,880	$31,985	2.727	84	118	$14,361	2.23	83
9	K-12	4,167	93.3%	0.0%	14.2%	33.8%	$5,203	$31,650	2.727	98	53	$14,633	2.16	98
5	K-12	1,221	98.3%	0.2%	16.2%	65.9%	$5,419	$31,189	2.727	110	114	$12,920	2.41	46
21	K-12	8,953	90.1%	2.2%	16.9%	38.0%	$5,757	$34,663	2.706	41	19	$15,851	2.19	93
6	K-12	2,271	99.6%	0.0%	14.0%	44.5%	$5,648	$32,418	2.697	69	89	$13,422	2.42	45
9	K-12	3,059	99.7%	0.0%	20.6%	53.0%	$5,130	$30,801	2.697	122	74	$11,723	2.63	20
17	K-12	6,933	97.7%	0.0%	16.3%	43.6%	$5,919	$35,676	2.676	33	24	$18,199	1.96	130
9	K-12	4,147	97.6%	1.9%	15.8%	38.5%	$5,184	$33,425	2.676	50	54	$17,263	1.94	133
11	K-12	6,242	91.7%	1.4%	18.1%	40.5%	$5,125	$32,806	2.676	59	33	$14,454	2.27	72
2	K-12	761	100.0%	0.0%	14.1%	58.8%	$5,677	$32,762	2.667	60	128	$12,882	2.54	31
8	K-12	3,364	90.8%	0.1%	15.1%	33.3%	$5,083	$31,689	2.667	96	68	$13,640	2.32	59
7	K-12	3,213	99.7%	0.0%	15.8%	55.4%	$5,231	$31,105	2.667	111	71	$11,027	2.82	6
2	K-12	815	88.2%	0.0%	13.6%	55.4%	$4,538	$30,387	2.667	133	126	$14,361	2.12	109
1	K-6	557	80.1%	1.1%	18.1%	49.5%	$4,956	$30,496	2.640	129	133	$15,379	1.98	127
4	K-12	1,396	93.4%	0.4%	15.4%	43.0%	$4,727	$31,695	2.636	93	107	$11,835	2.68	16
2	K-12	787	99.9%	0.0%	11.6%	42.7%	$5,571	$30,635	2.636	126	127	$10,132	3.02	3
5	K-12	1,731	75.8%	5.5%	13.1%	48.1%	$4,973	$30,487	2.636	130	102	$15,379	1.98	128
14	K-12	7,910	92.5%	0.2%	18.9%	34.0%	$5,387	$32,628	2.618	65	22	$15,241	2.14	106
2	K-12	621	93.8%	0.0%	16.8%	36.2%	$5,091	$31,919	2.606	86	132	$15,474	2.06	114
10	K-12	4,707	97.3%	0.9%	13.2%	35.6%	$5,023	$35,533	2.588	35	44	$15,931	2.23	80
3	K-8	1,402	89.4%	1.7%	20.3%	51.4%	$4,869	$32,735	2.577	61	106	$12,429	2.63	19
8	K-12	4,036	94.1%	0.6%	17.5%	35.6%	$5,118	$33,354	2.576	51	56	$16,493	2.02	122
10	K-12	4,216	94.0%	0.3%	16.1%	44.8%	$5,093	$32,946	2.576	56	51	$13,721	2.40	51

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nschool	config	nstudnt	pctW	pctELL	pctSED	pctFR	perpup	Tsal	GPA	Salrank	Nrank	percap967	index	indrank
10	K-12	3,870	93.9%	0.3%	14.3%	48.4%	$5,381	$32,301	2.576	73	57	$12,534	2.58	27
7	K-12	2,058	98.0%	0.0%	16.9%	38.5%	$4,807	$30,649	2.576	125	91	$14,086	2.18	96
8	K-12	4,087	89.9%	0.1%	13.8%	45.8%	$4,922	$30,499	2.576	128	55	$13,729	2.22	84
9	K-12	5,713	92.9%	0.7%	20.4%	36.1%	$5,101	$35,387	2.559	36	38	$14,351	2.47	41
17	K-12	11,416	76.1%	1.1%	17.3%	33.3%	$5,681	$34,975	2.559	40	13	$16,298	2.15	103
16	K-12	9,773	88.3%	0.8%	18.1%	25.7%	$5,229	$33,782	2.559	47	16	$15,327	2.20	87
2	K-12	954	94.0%	0.0%	13.8%	30.4%	$5,797	$33,815	2.545	46	122	$13,449	2.51	34
12	K-12	6,122	83.0%	5.1%	16.3%	34.6%	$4,684	$33,153	2.545	53	34	$15,451	2.15	104
15	K-12	6,917	98.7%	0.2%	20.6%	43.9%	$4,937	$31,693	2.545	94	26	$13,893	2.28	65
6	K-12	1,759	97.9%	0.8%	20.9%	59.7%	$5,631	$29,778	2.545	137	101	$11,657	2.55	28
6	K-12	2,460	82.7%	0.2%	11.9%	36.3%	$4,636	$31,754	2.485	89	85	$11,487	2.76	9
3	K-12	1,438	67.5%	0.0%	8.7%	47.6%	$5,209	$31,732	2.485	90	105	$15,474	2.05	117
8	K-12	4,660	82.9%	0.0%	14.8%	33.7%	$5,323	$32,058	2.471	82	45	$15,857	2.02	123
14	K-12	6,927	97.5%	0.2%	11.7%	24.5%	$4,914	$31,009	2.471	117	25	$14,559	2.13	107
4	K-12	2,645	95.8%	2.6%	15.9%	39.9%	$4,677	$30,917	2.455	120	80	$15,220	2.03	120
80	K-12	41,453	64.9%	0.6%	16.0%	42.0%	$6,440	$39,008	2.412	14	5	$20,032	1.95	132
16	K-12	8,899	97.2%	0.2%	11.8%	31.4%	$5,072	$35,988	2.412	31	20	$16,655	2.16	99
12	K-12	4,710	98.7%	0.1%	20.0%	67.0%	$5,695	$32,152	2.394	75	43	$12,349	2.60	24
4	K-12	1,122	99.6%	0.0%	17.6%	74.8%	$5,647	$31,701	2.394	92	119	$9,789	3.24	1
8	K-12	2,683	98.4%	0.3%	18.7%	56.1%	$5,258	$31,077	2.394	115	79	$11,888	2.61	22
23	K-12	13,777	46.8%	0.7%	22.0%	49.9%	$6,197	$39,458	2.382	12	10	$17,052	2.31	60
9	K-12	3,128	96.7%	0.2%	16.1%	36.3%	$4,281	$30,561	2.364	127	73	$14,788	2.07	112
5	K-12	1,394	87.2%	0.0%	24.3%	49.8%	$6,159	$35,102	2.333	39	108	$15,860	2.21	86
6	K-12	3,205	99.0%	0.6%	17.7%	54.0%	$4,785	$32,112	2.333	79	72	$11,704	2.74	11
2	K-12	429	94.5%	0.0%	16.0%	28.9%	$4,425	$31,264	2.303	107	134	$14,361	2.18	94
16	K-12	7,021	98.5%	0.3%	20.9%	49.9%	$5,322	$30,963	2.303	118	23	$14,369	2.15	102
4	K-12	1,574	99.5%	0.1%	18.6%	63.6%	$5,161	$31,772	2.273	88	103	$12,460	2.55	29
5	K-12	3,616	97.1%	0.0%	17.6%	40.6%	$5,050	$30,328	2.273	134	63	$12,650	2.40	52
126	K-12	68,345	47.5%	4.7%	15.5%	50.6%	$6,912	$41,072	2.235	6	2	$22,275	1.84	135
8	K-12	3,495	98.4%	0.5%	12.9%	37.2%	$5,160	$31,774	2.212	87	66	$13,461	2.36	55
17	K-12	6,095	99.3%	0.1%	18.4%	62.3%	$5,520	$30,462	2.212	131	35	$12,633	2.41	48

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nschool	config	nstudnt	pctW	pctELL	pctSED	pctFR	perpup	Tsal	GPA	Salrank	Nrank	percap967	index	indrank
7	K-12	2,315	99.9%	0.2%	25.6%	50.9%	$5,790	$30,233	2.212	136	88	$11,597	2.61	23
3	K-12	1,177	97.3%	0.0%	17.7%	46.7%	$5,952	$31,693	2.182	95	116	$12,648	2.51	35
8	K-12	2,334	99.1%	0.0%	17.5%	68.4%	$5,740	$31,441	2.182	101	87	$9,930	3.17	2
11	K-12	4,632	96.2%	0.5%	17.0%	67.7%	$5,157	$31,103	2.152	112	46	$13,054	2.38	53
3	K-12	1,284	86.5%	0.2%	18.8%	33.0%	$4,615	$31,011	2.152	116	113	$11,930	2.60	25
3	K-12	881	70.5%	0.0%	22.4%	65.1%	$6,027	$32,151	2.121	76	125	$11,641	2.76	10
9	K-12	4,622	45.0%	0.0%	17.8%	68.9%	$5,124	$31,242	2.091	108	47	$12,948	2.41	47
2	K-8	932	12.3%	0.0%	16.5%	97.1%	$6,122	$33,432	2.038	49	123	$14,743	2.27	74
7	K-12	3,006	99.7%	0.0%	23.4%	54.3%	$5,409	$30,734	2.030	124	76	$11,095	2.77	8
7	K-12	4,607	56.2%	1.6%	20.2%	68.4%	$5,377	$32,559	2.000	67	48	$13,040	2.50	37
2	9-12	8		0.0%				$31,567	2.000	99	138	$14,361	2.20	90
6	K-12	2,726	99.8%	0.0%	14.8%	75.5%	$5,654	$30,738	2.000	123	78	$11,714	2.62	21
5	K-12	1,844	39.2%	0.0%	18.8%	59.0%	$5,494	$31,420	1.939	104	96	$15,474	2.03	121
5	K-12	3,814	96.4%	0.2%	12.2%	47.7%	$5,271	$31,226	1.939	109	58	$12,824	2.43	42
1	K-5	358	60.5%	11.5%	16.8%	55.6%	$5,472	$31,445	1.923	100	136	$15,379	2.04	119
7	K-12	3,661	32.8%	2.2%	14.5%	82.7%	$5,606	$31,990	1.818	83	62	$14,533	2.20	89
16	K-12	6,476	99.3%	0.0%	14.7%	63.8%	$5,155	$30,948	1.818	119	31	$11,683	2.65	17
8	K-12	3,662	28.1%	0.6%	13.8%	85.1%	$5,755	$30,438	1.364	132	61	$14,090	2.16	100
165	K-12	116,378	11.6%	1.7%	12.0%	69.9%	$6,593	$42,273	1.353	5	1	$20,372	2.08	111

Note. System GPA not provided by State of Tennessee. GPA was computed by converting each letter grade assigned by the State of Tennessee to a student outcome area with a corresponding number, A = 4, B=3, C=2, D=1, F=0. This included promotion and dropouts as well as test proficiency.

Note. System 330 and 331 data are combined

Note. County per capita income (PerCap9697) was obtained from the 1997 Tennessee State Report Card Excel spreadsheet.

Note. Index not provided on State Report Card. Index was computed for the purpose of this study as TSAL/PerCap9697.

Table 3

Descriptives (n = 138)

Variable	Minimum	Maximum	Mean	S.E.Mean	S.D.
GPA	1.35	3.82	2.68	.04	.42
% local	12.5	64.7	32.44	1.00	11.76
n schools	1	165	11.67	1.71	20.07
n students	8	116,378	6,481.14	1,119.84	13,155.20
% White	11.6	100	86.95	1.45	16.92
% Black	0	87.1	11.22	1.41	16.44
% Hispanic	0	20.7	1.22	.17	1.99
% Asian	0	4.8	.51	.06	.70
% free/ reduced	5.7	97.1	43.52	1.26	14.8
% SPED	8.7	25.6	16.6	.27	3.15
% Title 1	0	100	33.06	2.34	27.46
% ELL	0	11.5	.76	.12	1.38
per pupil $	4,281	7,872	5,457.79	55.31	647.34
teacher salary ($)	29,774	44,318	33,703.70	280.96	3,300.58

Table 4

Pearson's Product Moment Correlations for System Data

	GPA	teacher salary	% ethnic	% free/ reduced	per capita $	per-pupil$	% local	system size
GPA	--	.44**	.34**	-.65*	.33**	.19*	.50**	-.13
teacher salary	--	--	-.27**	-.36**	-.67**	.76**	.83**	.41**
% ethnic	--	--	--	-.32**	-.31**	-.27**	-.21*	-.41**
% free and reduced	--	--	--	--	-.50**	-.01	-.47**	-.07
per capita $	--	--	--	--	--	.45**	.76**	.49**
per-pupil $	--	--	--	--	--	--	.65**	.26**
% local	--	--	--	--	--	--	--	.39**
system size	--	--	--	--	--	--	--	--

Note. ** $p < .01$, * $p < .05$

Table 5

Pearson's Product Moment Correlations for Ethnicity and ELL

	% ELL	% Hispanic	% free/reduced	% Black	% Asian	% SPED
% ELL	--	.886**	-.061	.165*	.280**	-.070
% Hispanic	--	--	-.052	.116	.174*	-.040
% free/reduced	--	--	--	.352**	-.426**	.073
% Black	--	--	--	--	.168*	-.120
% Asian	--	--	--	--	--	-.011
% SPED	--	--	--	--	--	--

Note. ** $p < .01$, * $p < .05$

Figure 1. Proposed Regression Model

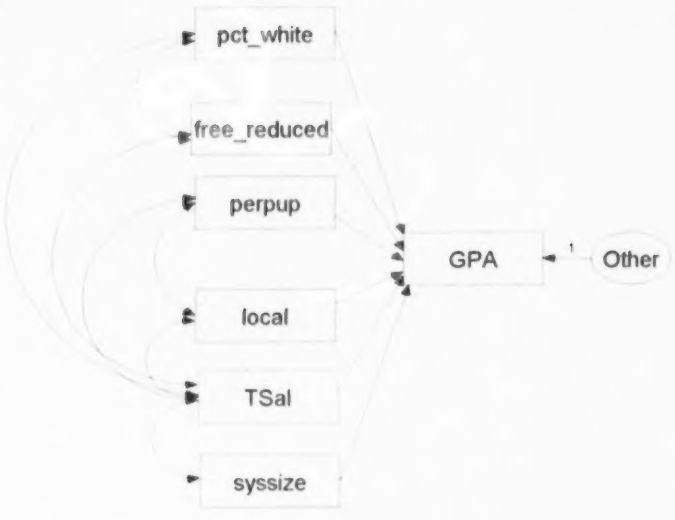

Figure 1. Proposed path model for school system GPA. (AMOS Version 3.6)

Table 6

Analysis of Variance for School System GPA

Source	df	SS	MS	F
Step 1				
Regression	6	14.705	2.451	34.909***
Residual	129	9.057	.0702	
Total	135	23.762		
Step 2				
Regression	5	.0000000012	.000000024	104.005***
Residual	131	.00000003	2285407.0	
Total	136	.0000000015		

Note: *** F < .001.
On Step 1 GPA regressed on percent local funding, percent white students, number of students, percent free and reduced lunch, per pupil expenditure, and teacher salary. On Step 2 teacher salary regressed on percent local funding, number of students, percent free and reduced lunch, per pupil expenditure, percent white students.

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting School System GPA

Variable	B	SE B	β
Step 1			
percent free and reduced	-0.009000	.002	-.323***
per pupil expenditure	-0.000090	.000	-.146
system size	-0.000009	.000	-.299***
percent white students	0.006000	.002	.230**
percent local funding	0.012000	.004	.330**
teacher salary	0.000040	.000	.339**
Step 2			
percent free and reduced	-41.060	12.518	-.184**
per pupil expenditure	2.300	0.297	.450***
system size	0.022	0.011	.087
percent white students	-16.650	9.484	-.085
percent local funding	112.530	20.070	.401***

Note. *** $p < .001$, ** $p < .01$.
Dependent variable on Step 1 was school system GPA and for Step 2 was teacher salary (Tsal).
Analysis of variance is provided in Table 6.

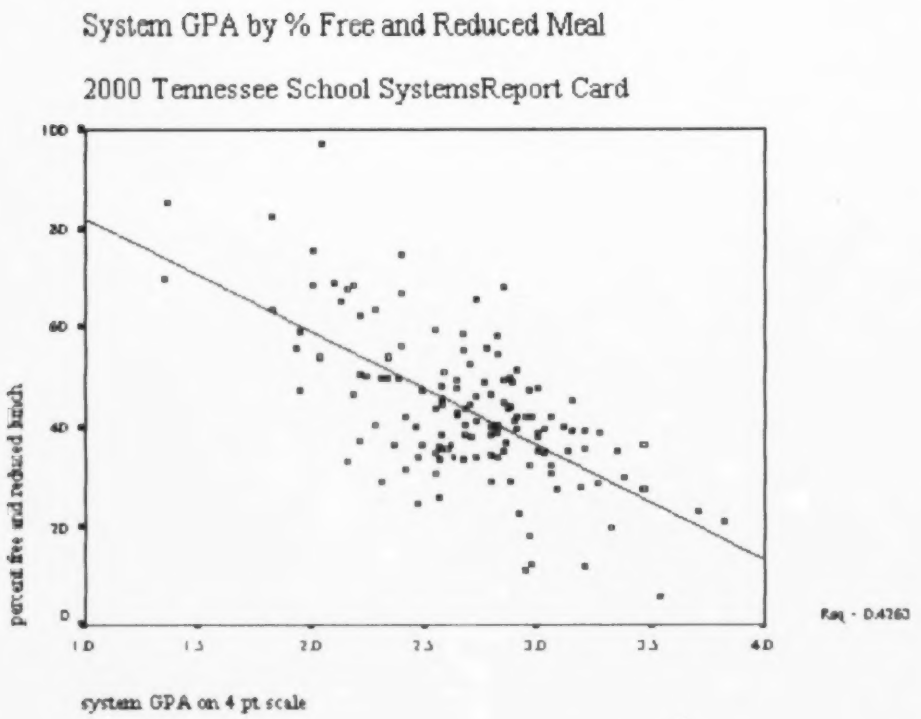

Figure 2. School system GPA by percent of students on free and reduced lunch

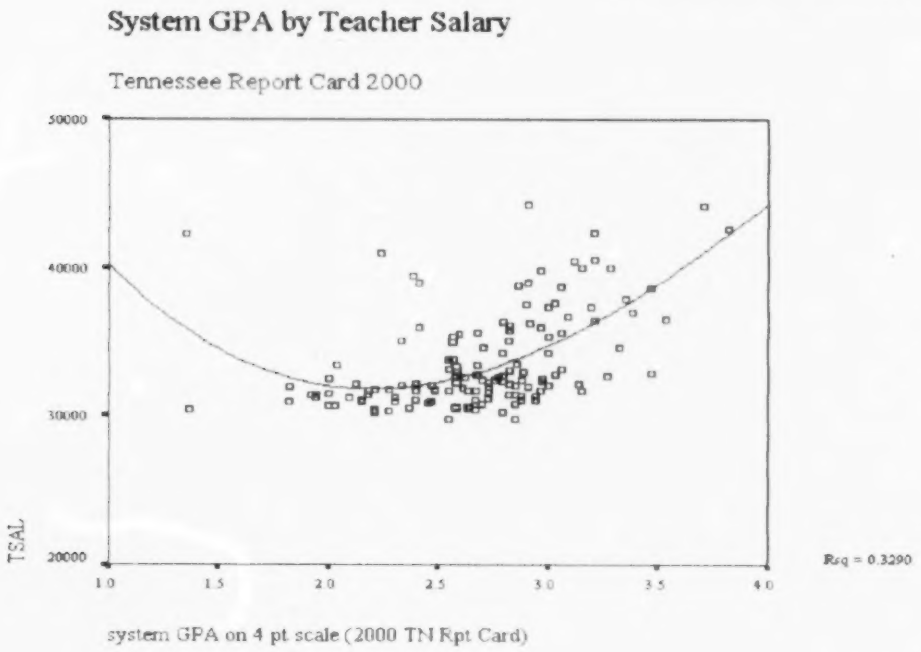

Figure 3. School system GPA by average teachers' salary.

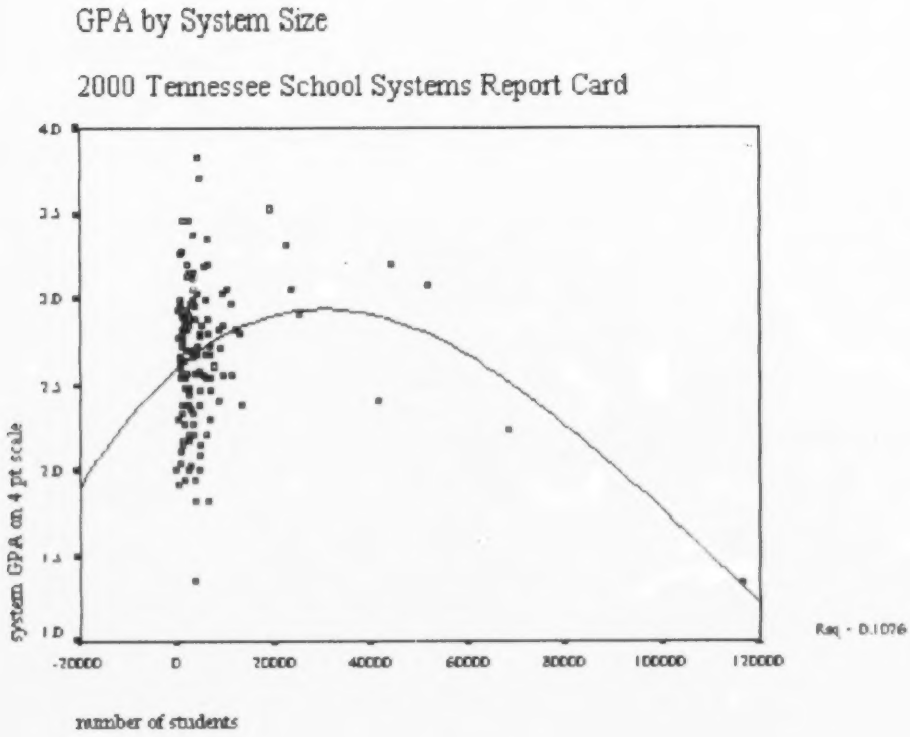

Figure 4. School system GPA by system size (n students).

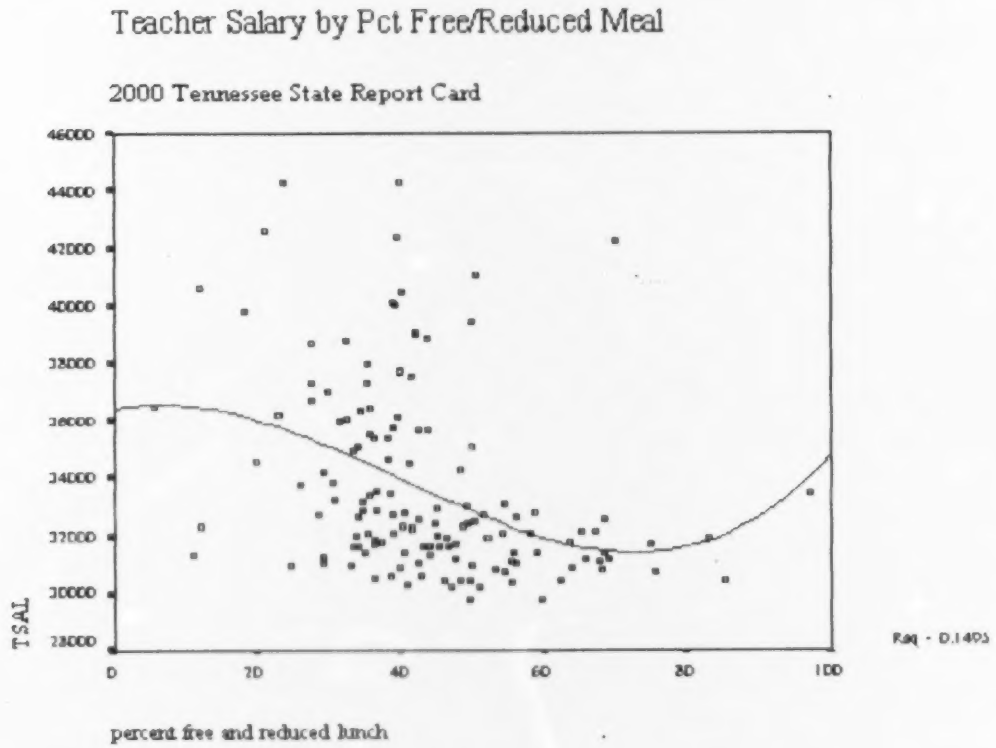

Figure 5. Teachers' salary by percent of students on free and reduced meal

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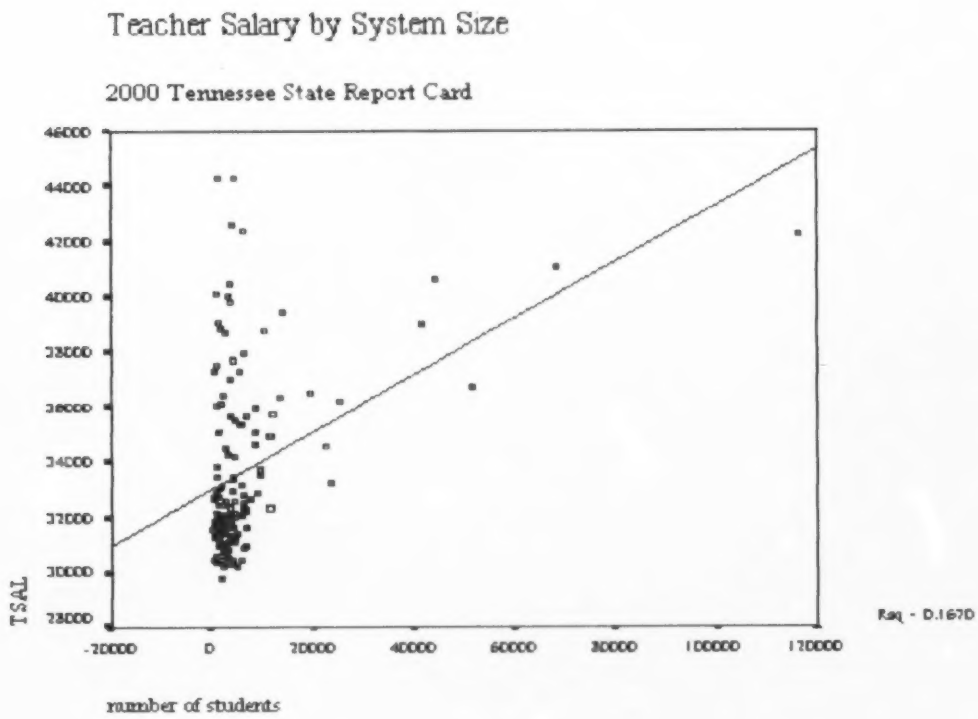

Figure 6. Teachers' salary by system size.

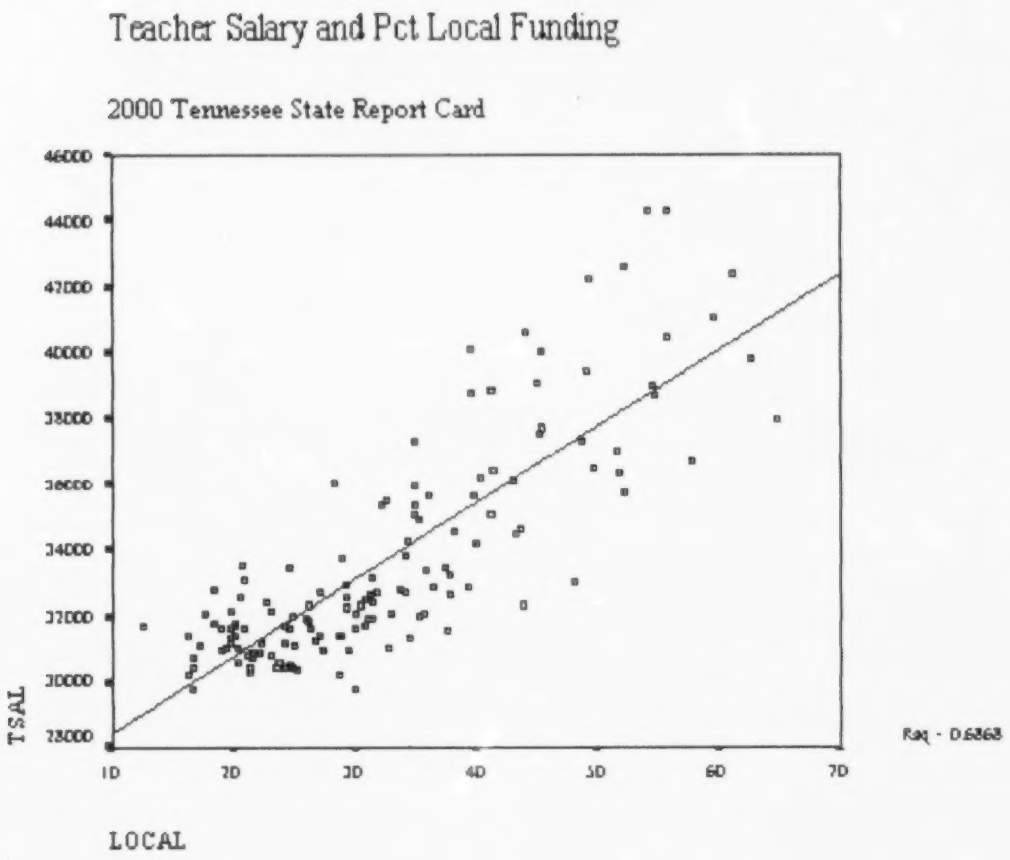

Figure 7. Teachers' salary by percent local funding.

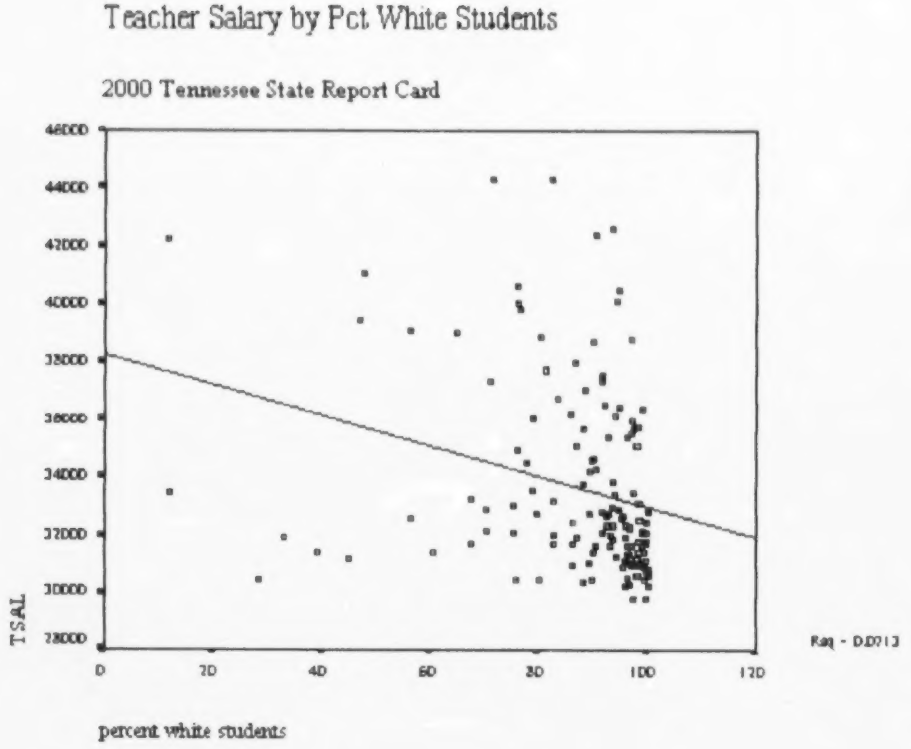

Figure 8. Teachers' salary by percent white students.

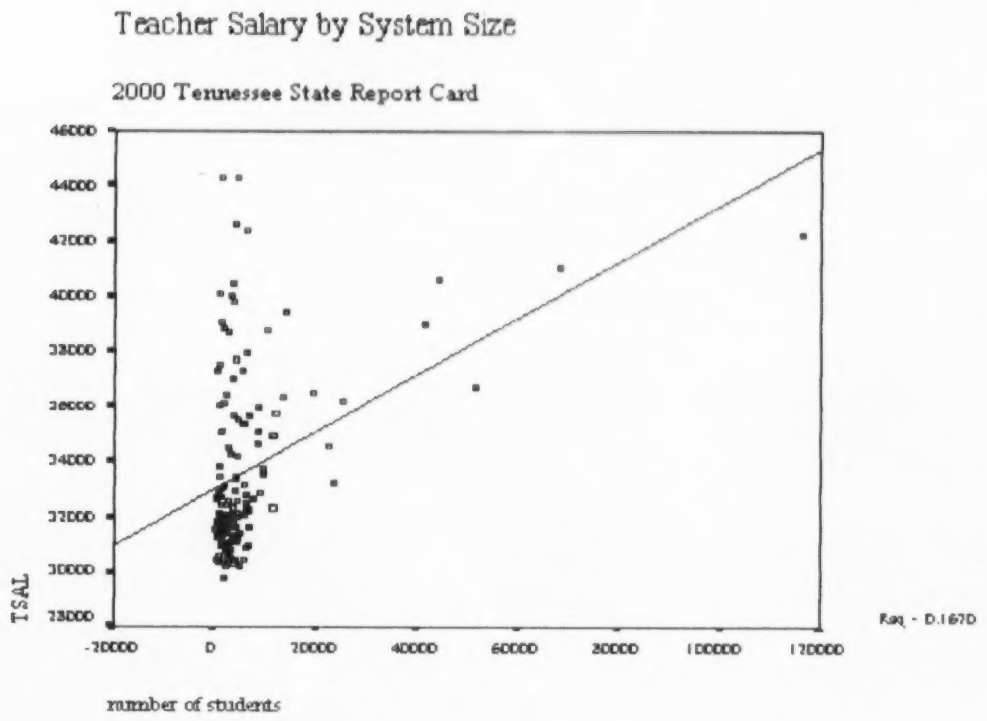

Figure 9. Teachers' salary by system size.

Table 8

Analysis of Variance for Two Stage Least Squares Regression

Source	df	SS	MS	F
Teacher salary	1	4.422	4.4221	30.68****
Residual	134	19.311	.1441	
Total	135	23.733	4.5662	

Note. Stage 1: GPA on teacher salary, Stage 2: per pupil expenditure, percent local, percent free and reduced meals, percent white students. Multiple R = .43, adj R^2 = .18.

Table 9

School Systems with GPA in Upper Quartile

sysname	nschool	config	nstudnt	pctFR	perpup	Tsal	GPA	percap967	index	indrank
Maryville City	6	K-12	4,184	21.1%	$6,428	$42,667	3.82	$16,426	2.60	26
Oak Ridge	8	K-12	4,559	23.3%	$7,872	$44,280	3.71	$18,199	2.43	44
Williamson County	29	K-12	19,056	5.7%	$5,688	$36,512	3.53	$26,458	1.38	138
Greeneville City	7	K-12	2,591	27.2%	$6,964	$38,653	3.47	$13,893	2.78	7
Fayetteville City	2	K-9	1,087	36.5%	$4,937	$32,881	3.47	$14,633	2.25	78
Tullahoma City	7	K-12	3,508	29.6%	$5,794	$37,023	3.38	$17,263	2.14	105
Johnson City	10	K-12	6,672	35.3%	$6,276	$37,900	3.35	$16,995	2.23	81
Sumner County	38	K-12	22,277	19.9%	$5,252	$34,603	3.32	$17,574	1.97	129
Clinton City	3	K-6	978	38.8%	$6,553	$40,065	3.28	$18,199	2.20	88
Rogersville City	1	K-8	627	28.5%	$5,131	$32,727	3.27	$14,369	2.28	66
Elizabethton City	5	K-12	2,148	35.5%	$6,085	$36,465	3.21	$12,633	2.89	4
Shelby County	43	K-12	44,189	12.0%	$5,438	$40,620	3.21	$20,372	1.99	126
Kingsport City	11	K-12	6,303	39.4%	$6,919	$42,428	3.21	$17,634	2.41	49
Murfreesboro City	10	K-8	5,644	27.5%	$5,767	$37,352	3.19	$17,637	2.12	108
Dyersburg City	4	K-12	3,276	39.2%	$5,851	$40,023	3.15	$16,221	2.47	40
Unicoi County	6	K-12	2,469	45.4%	$5,557	$31,667	3.15	$14,665	2.16	101
Milan Special	3	K-12	2,025	35.2%	$5,202	$32,137	3.13	$15,474	2.08	110
Bristol City	8	K-12	3,615	40.0%	$6,968	$40,491	3.12	$17,634	2.30	61
Knox County	86	K-12	51,708	27.4%	$5,975	$36,715	3.09	$19,551	1.88	134
Dyer County	9	K-12	3,488	42.3%	$5,859	$35,657	3.06	$16,221	2.20	91
Blount County	17	K-12	10,627	32.2%	$5,348	$38,740	3.06	$16,426	2.36	56
Montgomery County	30	K-12	23,449	30.6%	$5,310	$33,196	3.06	$14,528	2.28	63
Cleveland City	9	K-12	4,375	39.6%	$6,149	$37,686	3.03	$16,655	2.26	75
Putnam County	16	K-12	9,401	34.6%	$5,109	$32,850	3.03	$16,058	2.05	118
Newport City	1	K-8	709	35.3%	$5,781	$37,339	3.00	$13,054	2.86	5
Franklin County	12	K-12	5,841	38.7%	$5,227	$32,108	3.00	$14,313	2.24	79
Henry County	6	K-12	3,281	48.1%	$5,449	$34,259	3.00	$15,042	2.28	67
Roane County	14	K-12	5,885	38.1%	$5,758	$35,366	3.00	$15,860	2.23	82
Wilson County	17	K-12	11,412	12.2%	$5,451	$32,326	2.97	$17,667	1.83	136
Humphreys County	6	K-12	3,007	42.3%	$5,094	$32,562	2.97	$13,936	2.34	57
Lexington City	1	K-8	916	32.4%	$5,391	$36,047	2.96	$13,640	2.64	18
Dayton City	1	K-8	715	47.4%	$4,500	$31,722	2.96	$12,824	2.47	39
Franklin Special	6	K-8	3,807	18.2%	$7,215	$39,837	2.96	$26,458	1.51	137
Lewis County	3	K-12	1,890	42.3%	$4,797	$31,084	2.94	$12,344	2.52	33

Table 10

School Systems with Teacher Salary in Upper Quartile

System	Schools	Config	Students	Perpup	Tsal	Local	State	Fed
Alcoa City	3	K-12	1,332	$7,376	$44,318	55.8%	37.2%	7.0%
Oak Ridge	8	K-12	4,559	$7,872	$44,280	54.2%	39.3%	6.5%
Maryville City	6	K-12	4,164	$6,428	$42,667	52.2%	42.4%	5.4%
Kingsport City	11	K-12	6,303	$6,919	$42,428	61.1%	32.3%	6.5%
Memphis City	165	K-12	116,378	$6,593	$42,273	49.3%	39.0%	11.7%
Davidson County	126	K-12	68,345	$6,912	$41,072	59.5%	31.8%	8.7%
Shelby County	43	K-12	44,189	$5,438	$40,620	44.0%	51.4%	4.5%
Bristol City	8	K-12	3,615	$6,968	$40,491	55.8%	36.5%	7.6%
Clinton City	3	K-6	978	$6,553	$40,065	39.6%	51.8%	8.5%
Dyersburg City	4	K-12	3,276	$5,851	$40,023	45.4%	46.7%	8.0%
Franklin Special	6	K-8	3,807	$7,215	$39,837	62.5%	33.5%	4.0%
Madison County	23	K-12	13,777	$6,197	$39,458	49.0%	42.1%	9.0%
Union City	4	K-12	1,375	$6,596	$39,045	45.0%	45.8%	9.2%
Hamilton County	80	K-12	41,453	$6,440	$39,008	54.5%	35.9%	9.6%
Athens City	5	K-9	1,772	$5,970	$38,843	41.0%	47.4%	11.6%
Blount County	17	K-12	10,627	$5,348	$38,740	39.6%	52.5%	7.9%
Greeneville City	7	K-12	2,591	$6,964	$38,653	54.8%	38.2%	7.0%
Johnson City	10	K-12	6,672	$6,276	$37,900	64.7%	28.9%	6.4%
Cleveland City	9	K-12	4,375	$6,149	$37,686	45.3%	45.1%	9.6%
Manchester City	3	K-9	1,147	$6,343	$37,578	45.1%	46.2%	8.8%
Murfreesboro City	10	K-8	5,644	$5,767	$37,352	48.6%	45.4%	5.9%
Newport City	1	K-8	709	$5,781	$37,339	34.9%	58.0%	7.1%
Tullahoma City	7	K-12	3,508	$5,794	$37,023	51.7%	41.3%	7.0%
Knox County	86	K-12	51,708	$5,975	$36,715	57.9%	35.2%	6.9%
Williamson County	29	K-12	19,056	$5,688	$36,512	49.7%	46.8%	3.5%
Elizabethton City	5	K-12	2,148	$6,085	$36,465	41.2%	51.3%	7.5%
Sullivan County	31	K-12	13,175	$6,788	$36,356	51.8%	40.7%	7.4%
Rutherford County	30	K-12	24,991	$5,426	$36,248	40.2%	53.3%	6.6%
Lenoir City	3	K-12	1,913	$5,730	$36,140	43.0%	47.9%	9.1%
Lexington City	1	K-8	916	$5,391	$36,047	28.2%	62.5%	9.3%
Bradley County	16	K-12	8,899	$5,072	$35,988	34.9%	53.3%	11.8%
Sevier County	24	K-12	12,132	$5,705	$35,795	52.2%	40.6%	7.2%

Table 11

School Systems with Highest Teacher Salary-to-Per-Capita-Income Index

System	Schools	Config	nstudnt	perpup	Tsal	Salrank	Nrank	percap967	index	indrank
Hancock County	4	K-12	1,122	$5,647	$31,701	92	119	$9,789	3.239	1
Johnson County	8	K-12	2,334	$5,740	$31,441	101	87	$9,930	3.166	2
Van Buren County	2	K-12	787	$5,571	$30,635	126	127	$10,132	3.024	3
Elizabethton City	5	K-12	2,148	$6,085	$36,465	26	90	$12,633	2.886	4
Newport City	1	K-8	709	$5,781	$37,339	22	130	$13,054	2.860	5
Morgan County	7	K-12	3,213	$5,231	$31,105	111	71	$11,027	2.821	6
Greeneville City	7	K-12	2,591	$6,964	$38,653	17	82	$13,893	2.782	7
Union County	7	K-12	3,006	$5,409	$30,734	124	76	$11,095	2.770	8
Chester County	6	K-12	2,460	$4,636	$31,754	89	85	$11,487	2.764	9
Lake County	3	K-12	881	$6,027	$32,151	76	125	$11,641	2.762	10
Grainger County	6	K-12	3,205	$4,785	$32,112	79	72	$11,704	2.744	11
Oneida Special	3	K-12	1,192	$6,347	$32,126	78	115	$11,714	2.742	12
Athens City	5	K-9	1,772	$5,970	$38,843	15	100	$14,351	2.707	13
Alcoa City	3	K-12	1,332	$7,376	$44,318	1	112	$16,426	2.698	14
Meigs County	4	K-12	1,784	$4,906	$33,057	54	99	$12,312	2.685	15
Houston County	4	K-12	1,396	$4,727	$31,695	93	107	$11,835	2.678	16
Campbell County	16	K-12	6,476	$5,155	$30,948	119	31	$11,683	2.649	17
Lexington City	1	K-8	916	$5,391	$36,047	30	124	$13,640	2.643	18
Sweetwater City	3	K-8	1,402	$4,869	$32,735	61	106	$12,429	2.634	19
Overton County	9	K-12	3,059	$5,130	$30,801	122	74	$11,723	2.627	20
Scott County	6	K-12	2,726	$5,654	$30,738	123	78	$11,714	2.624	21
Wayne County	8	K-12	2,683	$5,258	$31,077	115	79	$11,888	2.614	22
Grundy County	7	K-12	2,315	$5,790	$30,233	136	88	$11,597	2.607	23
Claiborne County	12	K-12	4,710	$5,695	$32,152	75	43	$12,349	2.604	24
Trousdale County	3	K-12	1,284	$4,615	$31,011	116	113	$11,930	2.599	25
Maryville City	6	K-12	4,184	$6,428	$42,667	3	52	$16,426	2.598	26
Hardin County	10	K-12	3,870	$5,381	$32,301	73	57	$12,534	2.577	27
Bledsoe County	6	K-12	1,759	$5,631	$29,778	137	101	$11,657	2.555	28
Jackson County	4	K-12	1,574	$5,161	$31,772	88	103	$12,460	2.550	29
Decatur County	5	K-12	1,812	$5,575	$32,065	81	97	$12,581	2.549	30
Pickett County	2	K-12	761	$5,677	$32,762	60	128	$12,882	2.543	31
Fentress County	7	K-12	2,340	$5,231	$30,815	121	86	$12,221	2.521	32
Lewis County	3	K-12	1,890	$4,797	$31,084	113	95	$12,344	2.518	33
Moore County	2	K-12	954	$5,797	$33,815	46	122	$13,449	2.514	34
Perry County	3	K-12	1,177	$5,952	$31,693	95	116	$12,648	2.506	35

Note. Index computed as TSAL00/percap967. County per capita income from 1997 State Report Card. Comparison per capita income for 1996 from Tennessee Department of Labor available in Appendix A.

APPENDIX A

Tennessee County Per Capita Personal Income 1996

State of Tennessee

Department of Labor & Workforce Development

Per Capita Personal Income in Tennessee, By County and Metropolitan Area, 1980 to 1996

						Percent Change (by years)		
Areas	1980	1985	1990	1995	1996	'95-'96	'90-'96	'80-'96
Tennessee	**$8,145**	**$11,892**	**$16,328**	**$21,350**	**$22,032**	3.2	34.9	170.5
Chattanooga, TN-GA	8,486	12,133	16,964	21,571	22,517	4.4	32.7	165.3
Clarksville, TN-KY	7,338	9,866	12,402	16,465	16,933	2.8	36.5	130.8
Jackson	7,382	10,616	15,048	20,355	21,029	3.3	39.7	184.9
Knoxville	8,577	12,401	17,009	21,740	22,247	2.3	30.8	159.4
Memphis, TN-AR-MS	9,154	13,203	18,258	24,048	24,945	3.7	36.6	172.5
Nashville	9,242	14,227	18,845	25,507	26,262	3	39.4	184.2
Tri-Cities, TN-VA	7,539	10,892	15,079	18,742	19,482	3.9	29.2	158.4
Tennessee (Metro)	8,855	13,006	17,807	23,422	24,183	3.2	35.8	173.1
Tennessee (Non-metro)	6,727	9,637	13,200	16,949	17,465	3	32.3	159.6
Anderson	9,094	12,715	16,968	21,715	22,292	2.7	31.4	145.1
Bedford	7,612	11,078	14,851	18,531	18,672	0.8	25.7	145.3
Benton	7,188	9,652	13,453	16,990	16,829	-0.9	25.1	134.1
Bledsoe	5,259	8,218	10,532	13,266	13,676	3.1	29.9	160
Blount	8,444	11,824	15,626	19,486	19,856	1.9	27.1	135.1
Bradley	7,430	11,298	15,702	20,397	21,349	4.7	36	187.3
Campbell	6,623	8,433	11,000	14,312	14,823	3.6	34.8	123.8
Cannon	6,492	9,639	13,188	16,952	17,266	1.9	30.9	166
Carroll	6,681	9,586	12,817	16,952	17,160	1.2	33.9	156.8
Carter	6,302	8,666	11,906	14,784	15,270	3.3	28.3	142.3
Cheatham	7,752	11,430	13,910	17,898	18,326	2.4	31.7	136.4

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Areas	1980	1985	1990	1995	1996	'95-'96	'90-'96	'80-'96
Tennessee	**$8,145**	**$11,892**	**$16,328**	**$21,350**	**$22,032**	**3.2**	**34.9**	**170.5**
Chester	5,774	8,508	10,714	14,642	14,883	1.6	38.9	157.8
Claiborne	6,484	8,370	11,382	14,553	14,953	2.7	31.4	130.6
Clay	5,076	7,593	11,641	15,687	15,251	-2.8	31	200.5
Cocke	5,855	7,829	11,390	15,163	15,553	2.6	36.5	165.6
Coffee	8,146	12,208	16,216	19,507	19,891	2	22.7	144.2
Crockett	5,846	8,898	13,587	17,871	18,867	5.6	38.9	222.7
Cumberland	6,433	9,520	12,845	15,670	16,472	5.1	28.2	156.1
Davidson	9,757	14,947	20,200	28,355	29,394	3.7	45.5	201.3
Decatur	6,253	8,838	11,621	15,965	16,847	5.5	45	169.4
DeKalb	6,794	10,062	13,937	17,559	18,110	3.1	29.9	166.6
Dickson	7,612	11,208	14,509	18,826	19,216	2.1	32.4	152.4
Dyer	7,166	10,856	14,989	19,335	19,930	3.1	33	178.1
Fayette	5,973	9,014	12,790	18,931	19,351	2.2	51.3	224
Fentress	4,861	7,345	10,630	15,143	15,674	3.5	47.5	222.4
Franklin	6,586	9,943	13,396	17,310	17,719	2.4	32.3	169
Gibson	6,897	10,736	14,052	18,622	19,029	2.2	35.4	175.9
Giles	7,570	10,848	14,147	18,822	19,192	2	35.7	153.5
Grainger	5,090	7,348	10,826	14,243	14,455	1.5	33.5	184
Greene	6,537	9,817	13,366	16,463	17,102	3.9	28	161.6
Grundy	6,278	7,888	10,425	14,174	14,880	5	42.7	137
Hamblen	6,830	9,931	14,654	19,191	19,805	3.2	35.2	190
Hamilton	9,185	13,222	18,899	24,316	25,401	4.5	34.4	176.5
Hancock	4,527	6,163	8,814	11,569	11,943	3.2	35.5	163.8
Hardeman	5,740	8,138	11,943	15,188	15,896	4.7	33.1	176.9
Hardin	6,456	8,418	11,760	15,838	16,306	3	38.7	152.6
Hawkins	6,041	9,054	13,529	16,342	16,905	3.4	25	179.8
Haywood	6,109	8,654	12,520	16,530	17,656	6.8	41	189
Henderson	6,302	9,230	12,617	17,092	17,798	4.1	41.1	182.4
Henry	7,643	10,519	13,849	18,440	19,207	4.2	38.7	151.3
Hickman	6,484	9,766	12,029	15,380	15,856	3.1	31.8	144.5
Houston	6,457	7,842	10,987	13,696	13,932	1.7	26.8	115.8
Humphreys	7,941	9,696	12,842	16,638	16,700	0.4	30	110.3
Jackson	$4,984	$8,079	$11,090	$14,839	$15,512	4.5	39.9	211.2
Jefferson	6,513	9,277	13,374	16,015	16,205	1.2	21.2	148.8
Johnson	5,594	7,321	9,876	11,855	12,060	1.7	22.1	115.6
Knox	8,863	13,083	18,101	23,321	23,952	2.7	32.3	170.2
Lake	5,809	6,876	10,344	11,090	11,814	6.5	14.2	103.4
Lauderdale	5,783	9,047	11,797	15,067	16,101	6.9	36.5	178.4
Lawrence	7,285	9,925	13,385	17,623	18,052	2.4	34.9	147.8
Lewis	4,999	7,750	11,138	15,366	15,009	-2.3	34.8	200.2

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Areas	1980	1985	1990	1995	1996	'95-'96	'90-'96	'80-'96
Tennessee	**$8,145**	**$11,892**	**$16,328**	**$21,350**	**$22,032**	**3.2**	**34.9**	**170.5**
Lincoln	7,074	10,092	13,970	17,257	17,514	1.5	25.4	147.6
Loudon	7,593	10,645	15,134	19,260	19,341	0.4	27.8	154.7
McMinn	6,995	10,176	13,888	16,497	16,924	2.6	21.9	141.9
McNairy	6,096	9,431	12,367	15,926	16,520	3.7	33.6	171
Macon	6,096	8,658	12,038	15,112	15,057	-0.4	25.1	147
Madison	7,656	10,963	15,759	21,295	22,066	3.6	40	188.2
Marion	6,843	9,977	12,896	16,483	17,218	4.5	33.5	151.6
Marshall	7,544	11,548	15,381	19,431	20,571	5.9	33.7	172.7
Maury	7,741	10,758	14,765	19,773	20,681	4.6	40.1	167.2
Meigs	6,458	9,276	12,108	13,832	14,263	3.1	17.8	120.9
Monroe	5,847	8,387	11,650	15,694	15,831	0.9	35.9	170.8
Montgomery	7,562	10,497	13,300	18,088	18,475	2.1	38.9	144.3
Moore	6,877	9,771	13,646	15,951	15,973	0.1	17.1	132.3
Morgan	5,443	6,690	10,011	12,398	12,582	1.5	25.7	131.2
Obion	7,216	11,338	15,724	20,035	20,675	3.2	31.5	186.5
Overton	4,879	7,504	10,854	14,404	14,591	1.3	34.4	199.1
Perry	6,287	9,045	11,368	15,546	16,562	6.5	45.7	163.4
Pickett	4,639	7,549	11,074	14,800	14,944	1	34.9	222.1
Polk	6,534	9,540	11,841	15,676	16,411	4.7	38.6	151.2
Putnam	6,818	10,624	14,805	19,163	19,673	2.7	32.9	188.5
Rhea	7,112	9,947	12,492	15,078	15,323	1.6	22.7	115.5
Roane	8,484	10,659	14,837	19,070	19,601	2.8	32.1	131
Robertson	6,992	11,093	14,481	19,034	19,341	1.6	33.6	176.6
Rutherford	8,019	13,144	16,491	21,675	22,041	1.7	33.7	174.9
Scott	5,716	7,862	10,965	13,929	14,159	1.7	29.1	147.7
Sequatchie	5,995	8,514	12,132	15,449	15,928	3.1	31.3	165.7
Sevier	7,352	10,586	15,257	19,635	20,066	2.2	31.5	172.9
Shelby	9,572	13,748	19,149	25,301	26,277	3.9	37.2	174.5
Smith	7,455	10,369	13,938	17,496	17,914	2.4	28.5	140.3
Stewart	6,104	8,925	11,929	14,983	15,163	1.2	27.1	148.4
Sullivan	8,394	12,319	16,863	20,755	21,610	4.1	28.2	157.4
Sumner	8,512	12,785	16,750	21,360	21,993	3	31.3	158.4
Tipton	7,129	10,118	13,661	17,042	17,636	3.5	29.1	147.4
Trousdale	7,106	8,438	10,933	14,128	13,447	-4.8	23	89.2
Unicoi	6,847	9,485	14,063	17,122	17,701	3.4	25.9	158.5
Union	5,443	7,665	10,006	12,783	12,924	1.1	29.2	137.4
Van Buren	5,622	7,358	9,617	12,413	13,098	5.5	36.2	133
Warren	7,373	9,501	13,370	17,290	18,657	7.9	39.5	153
Washington	8,150	11,500	15,973	20,471	21,201	3.6	32.7	160.1
Wayne	6,292	8,471	10,648	13,240	13,425	1.4	26.1	113.4

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Areas	1980	1985	1990	1995	1996	'95-'96	'90-'96	'80-'96
Tennessee	**$8,145**	**$11,892**	**$16,328**	**$21,350**	**$22,032**	**3.2**	**34.9**	**170.5**
Weakley	6,547	9,639	13,130	17,331	17,833	2.9	35.8	172.4
White	7,079	9,867	12,193	15,495	15,737	1.6	29.1	122.3
Williamson	11,246	17,931	24,120	31,937	32,925	3.1	36.5	192.8
Wilson	8,680	12,859	16,556	21,569	22,096	2.4	33.5	154.6

Note. Data from State of Tennessee Department of Labor and Workforce Development.

APPENDIX B

TENNESSEE PERFORMANCE MODEL

April 2000

Introduction

Tennessee's current performance goals—attendance rate, dropout rate, promotion rate, and value added assessment, grades 4 through 8—were adopted by the State Board of Education in 1994 following the General Assembly's enactment of the Education Improvement Act (EIA) in 1992.

At the request of the State Board of Education, the Advisory Committee on Accountability developed recommendations regarding performance goals for Tennessee school systems. The committee reviewed the state's performance goals in light of various policy actions that have taken place since the adoption of the EIA:

Revisions to the law,
Outside evaluation of the Tennessee Value Added Assessment System,
Recommendations of the Office of the Comptroller, and
Changes in the testing program, including the addition of the Competency Test, new standardized tests in grades 3 through 8, and
High School End-of-Course Assessments.

(Note* for Tennessee Curriculum Frameworks and Gateway Test Standards visit http://www.state.tn.us/education/ci/cicurframwkmain.htm)

The new model retains the current performance goals and indicators and adds goals in attainment, end-of-course assessments, and exit exams.

The purposes of the revised accountability model are:

Improvement of student learning,
Improvement of the instructional program,
Public accountability including information, rewards, and sanctions, and
Consistency with federal requirements.

Performance Model

The performance model establishes performance goals and sets forth appropriate indicators and measures. The model consists of non-academic goals—such as attendance, dropout rate, and promotion—and academic goals. The academic goals include indicators of academic attainment as well as value-added estimates. The state will compile and report weighted percent of goals met and progress made and will compile and report results by grade spans and by categories.

The model will be implemented in two phases. Phase I will be a transitional model to be implemented in 1999-00 and 2000-01 prior to implementation of the High School End-of-Course Examinations and will include the Competency Test.

Results will first be reported in November, 2000. Phase II will be implemented beginning in 2001-02, when the Competency Test will be replaced by three Gateway End-of-Course Examinations in Algebra I, English II, and Biology I. The results will be reported in November, 2002. The proposed indicators and weights are shown in the attached tables and figures.

The model is based upon thirteen goals. Goals in three areas (8, 9 and 12) will be determined prior to the implementation of Phase II.

Performance Goals for Tennessee School Systems

1. Student Attendance: An overall average attendance rate of at least 95% for students in grades K-6 and 93% for students in grades 7–12.
2. Dropout Rate: A dropout rate of no more than 10% for grades 9 through 12.
3. Promotion Rate: An overall student promotion rate by the end of the summer of at least 97% in grades K-8.
4. Value Added: An average score increase in reading, language, mathematics, science and social studies in grades 3 through 8 that is equal to or greater than the average national score increase as measured by scale scores (plus or minus two standard errors of measurement) on the TCAP Achievement Test.
5. Academic Attainment, Grade 3: Achievement within or above the national average range on the TCAP Achievement Test in reading and mathematics by all students.
6. Academic Attainment, Grades 5 and 8: An average performance at the proficient level (level 4) on the TCAP Achievement Test beginning in 2001-02 (Average performance at level 3.5 in the years 1999-00 and 2000-01).
7. Elementary and Middle Writing Assessment, grades 4 and 7: An average performance level of proficient (level 4).
8. Gateway Examinations—Algebra I, English II, and biology: Percentage of students (to be determined) passing the exams the first time.
9. Academic Attainment, high school end-of-course assessments: math foundations, Algebra I, geometry, Algebra II, English I, English II, physical science, biology, chemistry, and U. S. history (goal and measure to be determined).
10. Value Added: An average score in ten high school subjects equal to or greater than 100% of the expected performance.
11. High School Writing Assessment, grade 11: An average performance level of proficient (level 4).
12. Attainment, ACT and SAT: Level specified for full admission into Tennessee institutions of higher education. (Goal to be determined)
13. Value Added, ACT and SAT An average score equal to or greater than 100% of the expected performance.

Implementation of the Model

Reporting

1.System Level Data. The performance model will include data for each indicator and an aggregation of the data to be reported in school system report cards. This information allows systems to compare themselves to the state average and to compare their own performance over time. Data will be reported for grade spans K-5, 6-8, and 9-12 within school systems. (This reporting plan does not require school systems to organize their facilities in this way).

2.School Level Data. The state will publish accountability information about schools in a format that is useful and thatimproves public understanding about the schools in the local community.

3.Data. Whenever possible, data used in the model will be three-year averages. This will not always be possible: for example, the High School End-of-Course Examinations will be one-year data with the initial implementation of this program. When three-year averages are used, the state will use trend analysis to review progress from year to year.

4.Application of the Model: The components of the model will be reported in the three categories of academic attainment, value added estimates, and non-academic factors. Schools meeting value added goals, progressing toward meeting academic attainment goals, and meeting non-academic goals may be eligible for incentive awards.

Improvement of Student Learning and the Instructional Program

1.School Improvement Planning Process. The school improvement planning process will include use of school level data to improve the instructional program and student learning. The state will provide assistance to school systems in analyzing data from the TCAP Achievement Test, grades 3 through 8, for use in preparing students to be successful on high school assessments.

2.Professional Development. In order to ensure that students will be able to meet the ambitious goals set forth in the model, the state and schools will target professional development resources toward content and teaching strategies that address the performance standards of the assessments.

3.Extra Support for Students Who Need It. Schools will provide extra support to students who need help in reaching the goals set forth in this model, with emphasis on research based intervention methods.

4.Attainment Goals. Attainment goals for the TCAP Achievement Test in grades 3, 5 and 8 and the Writing Assessment in grades 4, 7 and 11 are cumulative goals measuring achievement in grade levels leading up to the assessment; they are not goals measuring achievement in a single grade. The attainment goals for grades 5 and 8 are 3.5 in Phase I and 4.0 (proficient) in Phase II. These are very ambitious goals. Annual progress in meeting these goals within a set number of years will be established consistent with federal guidelines as necessary to meet evaluation requirements for federal programs.

Board Review

1.Review by the State Board of Education. The State Board of Education will review the model on a continuous basis in order to monitor and adjust the model and to adjust state programs and policies to ensure that students have meaningful opportunities for learning.

2.Periodic Review. Specifically, the Board will review the accountability model, including the weights assigned to the various indicators, prior to dissemination of results in Phase I, prior to the implementation of Phase II, and periodically thereafter.

Source: Tennessee State Department of Education

Appendix B Attachment 1
Transitional Indicators

TABLE 1				
PHASE I - TRANSITIONAL INDICATORS (1999-00 – 2000-01)				
Non-Academic	**Grade Level**	**Measure**	**Goal**	**Weight**
Student Attendance	K-6	Percent	95%	5%
Student Attendance	7-12	Percent	93%	5%
Dropout Rate	9-12	Percent	10%	6%
Promotion Rate	K-8	Percent	97%	5%
Academic, Elementary & Middle	**Grade Level**	**Measure**	**Goal**	**Weight**
Value Added Academic Growth	4-8	% of Expected Performance	100%	29%
Academic Attainment – Elementary Reading and Math	3	% at or above National Average Range	100%	5%
Academic Attainment – Elementary & Middle	5, 8	Avg. Performance Level	3.5	10%
Elementary and Middle Writing Assessment	4,7	Avg. Performance Level	4	10%

TABLE 1				
PHASE I - TRANSITIONAL INDICATORS (1999-00 – 2000-01)				
Academic, High School	**Grade Level**	**Measure**	**Goal**	**Weight**
Competency Test – Language Arts & Math	9	% Passing in 9th Grade	80%	9%
Value Added – High School End-of-Course	When Completed	% of Expected Performance	100%	5%
High School Writing	11	Avg. Performance Level	4	5%
ACT, SAT, Attainment	When Completed	% at level for full admission into TN Institutions of Higher Education	To be determined	3%
Value Added	When Completed	% of Expected Performance	100%	3%

Source: Tennessee State Board of Education

Appendix B Attachment 2
Proposed Indicators

TABLE 2				
PHASE II - PROPOSED INDICATORS (2001 – 02)				
Non-Academic	**Grade Level**	**Measure**	**Goal**	**Weight**
Student Attendance	K-6	Percent	95%	4%
Student Attendance	7-12	Percent	93%	4%
Dropout Rate	9-12	Percent	10%	6%
Promotion Rate (by end of summer)	K-8	Percent	97%	4%
Academic, Elementary & Middle	**Grade Level**	**Measure**	**Goal**	**Weight**
Value Added Academic Growth	4-8	% of Expected Performance	100%	25%
Academic Attainment – Elementary Reading and Math	3	% at or above National Average Range	100%	4%
Academic Attainment – Elementary & Middle	5, 8	Avg. Performance Level	4	8%
Elementary & Middle Writing Assessment	4, 7	Avg. Performance	4	8%
Academic, High School	**Grade Level**	**Measure**	**Goal**	**Weight**
Gateway Tests – Algebra I, English II, Biology	When Completed	% Passing 1st Time	To be Determined	8%

TABLE 2				
PHASE II - PROPOSED INDICATORS (2001 – 02)				
Non-Academic	**Grade Level**	**Measure**	**Goal**	**Weight**
Student Attendance	K-6	Percent	95%	4%
Student Attendance	7-12	Percent	93%	4%
Academic Attainment – 10 High School End-of-Course	When Completed	To be Determined	To be Determined	10%
Value Added – 10 High School End-of- Course	When Completed	% of Expected Avg. Performance	100%	10%
High School Writing	11	Avg. Performance Level	4	4%
ACT, SAT Attainment	When Completed	% at level for full admission into TN Institutions of Higher Education	To be Determined	2.5%
Value Added, ACT, SAT	When Completed	% of Expected Performance	100%	2.5%

Source: Tennessee State Board of Education